The Builder.

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The Clamour about the Strand.

THE *Times* of Tuesday contained a series of angry letters in regard to the wickedness of the London County Council in marking out the north building line in the new portion of the Strand, along with a leading article in which it is assumed that the alternative line proposed by the self-constituted body called "The Further Strand Improvement Committee" has received "the support of all architects and artists from the President of the Royal Academy downwards," on the ground that this assertion has been made by one of the said correspondents. We observe also that the writer of the article makes a point of the fact that attention was first drawn to the subject by a letter in their columns from an eminent sculptor. We noticed the letter at the time, and could not quite understand the reason for it (sculptors not having generally shown themselves very much excited in regard to street improvements), until we realised that the eminent sculptor was to have his monument to Gladstone placed just west of St. Clement Danes church, and that the line of street as proposed would partly cut off the view of said monument in one direction. Then, of course, we put two and two together, and understood the sculptor's complaint. But, so far as that part of the question is concerned (to have done with it first), we should say that the less prominent the monument is the better. The statue of Gladstone is a fine one, as a portrait statue; but the design of the monument as a whole, with the four figures brandishing their arms in the air, and totally unconnected with the centre pedestal, is one of the worst and most absurd things in modern London, entirely wanting in architectonic composition, and such as we do not believe would have been allowed to be erected in Paris. So far as that part of the matter is concerned, the less conspicuous is the monument the better; it is hardly a credit to English Art.

Mr. Frederic Harrison in his letter talks about "a bungling makeshift," and the east horn of the island making a "dip so as to narrow the Strand at the angle facing the Gladstone memorial"; and the editor of that remarkably æsthetic journal the *Spectator* (what does he do in this galley?) talks about "the intrusion of a block of new buildings into what ought to be one of the finest thoroughfares in the world." What are these good gentlemen talking about? There is no "intrusion" and no narrowing; the Strand at the east end of Aldwych is one of the widest streets in London—a great deal wider than Fleet-street, into which its eastward traffic runs. The point is, not that it is narrow there, but that it is wider near St. Mary-le-Strand, in the natural process of clearing the church: wider than necessary except for that purpose. No vandalism whatever has been committed or proposed. The line of street as officially proposed is the most symmetrical having regard to the whole distance between the west and east terminations of Aldwych. The line which the "Further Strand Improvement" people want would destroy that symmetry; and some people do not seem to understand that the shape of a building, as delimited by the street line, is a matter of architectural and practical importance as well as the line of a street. A building cannot be set out so well, architecturally or practically, on an unsymmetrical piece of ground as on a symmetrical one.

It is complained that the official street shuts out what might be a vista showing part of the Law Courts to passengers on the north side of the Strand. It has already been suggested, we believe, that those who are so anxious to get a glimpse of the Law Courts from the Strand may do so by crossing to the south side. But what does this criticism really mean? This journal was the first to insist, many years ago and repeatedly, on the importance of axial setting out of public monuments, and of street lines in regard to such monuments, a subject which twenty or thirty years ago was almost entirely ignored in this country; and if there were any question here of axial line we should support it with both hands. But there is no such question before us. What the "improvers" want to do is to carry the line of the north side of the Strand at an oblique angle northwards—a line which is axial with nothing, which leads up to nothing except to an angle of the Law Courts, and

which would leave an unsymmetrical space of open street, widening eastwards, certainly wider than the traffic needs, and of a shape which would deprive it of any value for architectural treatment as an open space. It is characteristic of the nonsense that finds admission into the daily papers on such subjects, that one of these correspondents actually compares the irregular space that would be thus formed to Trafalgar Square, and goes into ecstasies over what he calls "the new square"; the real fact being that a medley of unsymmetrical lines would be produced, leaving an open space of a shape with which nothing effective could be done.

When Mr. Frederic Harrison recalls part of the old scheme by which there was to be a large semicircular *place* formed to the north of St. Mary-le-Strand church, as the southern termination of Kingsway, we quite agree with him that that was a fine scheme, and we regretted its abandonment; but the mischief is done now, and it cannot be undone by pottering with the east end of the plot in a hunt after impossible vistas and axial lines which do not exist. The scheme is not as good as it was once meant to be, but it is symmetrical, and it had better be left so.

The one point that may be desirable to reconsider is whether the roadway at the turn northward of the road towards the Law Courts is not a little too confined. As far as we have observed it cannot be said to be practically too narrow for the traffic, it only has that appearance when seen foreshortened from certain points of view, whence the turn does seem rather a sharp one. The defect has been absurdly exaggerated; but at all events it might be altered, as we have already suggested, by cutting off a small part of the east angle of the building site, without altering the main line of the street.

We hope that the County Council will not allow themselves to be coerced by a demand with little or no architectural reason in it, made by people some of whom at all events do not in the least understand what they are writing about.

We observe that our refusal to support the views of the "Further Improvement Committee" has led to our being honoured by some characteristically impertinent remarks in the secretary's circulars, on which we need make no comment beyond the remark that it is not the first time that we have received this kind of attention from people who have wanted our support and not obtained it.

THE MITCHELL LIBRARY, GLASGOW.—The laying of the memorial-stone of the new Mitchell Library took place on the 17th inst. The building, which is situated immediately on the east of St. Andrew's Halls, is from north to south about 180 ft. in length, and has a depth from east to west of about 105 ft. A space has been left between the library and the halls for future extension. The accommodation provided for includes a main reading hall, 110 ft. by 51 ft., arranged for 300 readers; students' room for 50 readers, ladies' room for 50 readers, magazine room for 200 readers, and suitable apartments for the Jeffrey Reference Library, for the Glasgow Collection, and for the Burns Library and Scottish Poets' Corner. Provision is made for the convenient storing of about 400,000 volumes, and for the necessary administrative offices. The estimated cost of the building, as approved by the Corporation, is 52,850*l*. Mr. William B. White, of Glasgow, is the architect.

BRITISH RAINFALL IN 1906.

DWELLERS in great cities are inclined to believe that British rainfall is a mistake, if not a crime, in places where water can be drawn whenever desired from a convenient tap and where the dust on roads that have not been tarred can be laid by plentiful showers from the municipal water van. Going a little farther from the busiest haunts of men, there are ingenious philosophers who think that rain is good for the automatic watering of flower-beds, fruit trees, and grass, not to say for its cleansing effect upon the air and the temporary relief it affords from the cloud-raising motor-car. But they would like more regularity in the downfall, and have not yet agreed as to the precise hours at which it should occur in each day or night. Further afield still, there is the farmer who firmly believes that rain always comes at the wrong time when it does come, and ought to come at times when it does not arrive. These and doubtless other classes of the community are generally in agreement that the clerk of the weather presides over a very badly-managed department, and that when a year of rainfall has been survived the best thing is to forget all about it and to look forward with such hope as can be mustered for better luck next time.

No such spirit animates Dr. Mill, the energetic Director of the British Rainfall Organisation, who takes an amphibious delight in the study which he has made the object of so much labour, and concerning which he presents such valuable data year by year. In his last Report* we have a summary of the records taken by more than 4,000 observers in Great Britain and Ireland on the distribution of rain in space and time over the British Isles during last year, and several short articles upon various branches of rainfall investigation. This is the forty-sixth volume of a continuous record whose value is fully recognised by public bodies, such as the Meteorological Office and the Metropolitan Water Board, as well as by engineers and others requiring guidance concerning the average rainfall in districts where water supply or drainage works are needed. In spite of such appreciation, however, there is little disposition on the part of the Government to contribute towards the cost of maintaining the organisation. The Report tells that in return for a rainfall map of the British Isles, published in their "Monthly Weather Report," the Meteorological Office makes a payment barely sufficient to cover the cost of draughtsman's time. We do not blame the Meteorological Office for this parsimonious treatment, because everybody knows the niggardly way in which Governments—Liberal and Conservatives alike—have always treated that department, and all other organisations performing work of the greatest value to the nation, except in cases where the work done may be thought likely to gratify political partisans or to influence the electorate at large.

Quite unlike the systems prevailing on the Continent and in the United States, the simple method in this country is that the observers of the British Rainfall Organisation give their services free of charge, and also pay for the publication and discussion of the data they furnish. Dr. Mill says that one valued friend of the organisation has stopped his usual contribution as a protest against the neglect of the Government. He adds:—"I hope that the sentiment will spread, but that the example will not be followed; if it were it would make things very difficult for me without, I fear, greatly troubling the Government." That the work to which we refer deserves more liberal support is fully evidenced by every page of the recently published Report, and it is to be hoped that our readers will consider the propriety of aiding, so far as may be within their power, the efforts of Dr. Mill and his numerous colleagues.

The records published for 1906 appear to be fairly comparable with those for 1905. At Camden-square the conditions approximated very closely to the average conditions of the past twenty-five years, and, speaking in general terms, the rainfall of the British Isles for last year was neither above nor below the average prevailing between 1870 and 1899. This statement, of course, does not give any clue to the distribution of rain in respect either of periods or of places. Those desiring information on such matters will find complete data in the tables and excellent maps prepared by Dr. Mill.

As we have pointed out on previous occasions, there has been since 1889 a regular alternation of two dry years and one wet year. That sequence commenced only in 1889 without any apparent reason, and will not continue indefinitely. Whether it has already come to an end we cannot yet judge, for although 1906 was an average year, instead of being a wet one as it should have been, according to the sequence theory, it is always permissible to regard an average year as one of small excess if the two following years prove very dry, or as one of small deficiency if the two next years prove wet. When the records for 1907 have been completed, we shall have a better opportunity than the present for discussing the question.

In England and Wales the general result for last year was a deficiency of 1 per cent. on the thirty years' average, although the figures show an excess of 5 per cent. on the average rainfall of the ten years 1890-1899. The distribution of rainfall, however, was remarkable, some parts of each country being distinctly wet and others distinctly dry. Reference to the map comparing rainfall with the thirty years' average justifies the view that both England and Wales were wetter than the average except in two dry areas—one extending from the Wash to Newcastle and the Lake District, and the other covering the regions extending from the south coasts of Cornwall, Devon, and Dorset to Derbyshire and the estuary of the Dee.

In Scotland the rainfall was 8 per cent. in excess of the thirty years' average, which in that part of Great Britain coincided with the average for the ten years 1890-1899. In the Island of Mull, a small area near the Border, and a larger area extending from the East Coast between Dundee and Aberdeen towards Glasgow, the rainfall was slightly below

* "British Rainfall." By Hugh Robert Mill. London: Edward Stanford. 1907.

the average. All the remainder of the country showed an excess of about 10 per cent., and three large areas showed excesses ranging from 20 per cent. to 30 per cent.

In Ireland the deficiency of rainfall was 6 per cent. below the average of the thirty years from 1870 to 1899, but the average was somewhat exceeded in the west and north-west; while in the south-east and west there was a deficiency of between 20 per cent. and 25 per cent.

On the whole, it will be seen that the popular belief, founded on experience of the holiday months, as to the dryness of 1906, is not sustained by authoritative data for the whole of the year.

Records of evaporation and percolation, presented by Dr. Mill, have been gathered from a limited number of observers, and, as these phenomena are of considerable import to water engineers and others, it is to be hoped that means may be found for extending investigations more largely throughout the country.

Comparing the average rainfall of 34·23 in. for England and Wales, with the average evaporation of 18·07 in. at the eleven evaporation stations, we may infer that about 52·5 per cent. of the water provided by nature would rise again into the clouds unless promptly absorbed by the earth. Statistics on percolation are given on the authority of Mr. Baldwin Latham, who shows that at Croydon, with the rainfall of 25·815 in., the percolation was 10·3011 in. through chalk, and 12·6637 in. through gravel. The experience of Mr. D. Ronald at Falkirk in 1906 was that with the rainfall of 39·92 in., the percolation through sandy soil amounted to 20·09 in.

It is interesting to notice that most of the rain of January, February, March, November, and December percolated into the soil at Croydon, while percolation was almost absent between May and October.

These figures, although fragmentary, are yet sufficient to suggest the desirability of strengthening the hands of the British Rainfall Organisation so as to enable professional men and administrative bodies not only to estimate the probable supplies of rainwater, but also to trace its destination so far as this may be influenced by natural causes.

NOTES.

The Railway Companies and Trade Unions. THE moderate tone and skilful generalship of Mr. Bell in the conduct of his campaign on behalf of the branch of the trade union which he represents tend to enhance the difficulty of the position of the railway companies, but should not be allowed to obscure the real issue. Mr. Bell, by asking the companies to recognise his Society, is endeavouring to make the companies do that for this branch of the union which Mr. Bell and his associates have been unable to accomplish themselves, *i.e.*, to make it the one union which all railway servants must recognise. If the companies even accede to the apparently moderate demand for a conference, this object will, nevertheless, have been attained. Mr. Bell's forces will have been consolidated, and he will be able to dictate terms to the railway companies with all the resources of trade unionism at his back. There is, moreover, at present no unanimity in the demands of the men to confer about. Mr. Bell's argument that as the railway shareholders are represented by the directors, so ought the men to be represented by his Society, is fallacious, except so far as it supports the policy being adopted by the railway boards. The shareholders of one railway company, or a minority of them, do not claim to be represented by the directors of another company. The directors of each company are nominated by and represent those having a direct interest in that company. In the same manner the directors of each of the companies are ready and willing to meet their own men, or their delegates, but not to listen to men in other employ. The general public at present hardly appear to grasp the very vital question which underlies Mr. Bell's apparently moderate demands.

Workmen's Compensation. THE case of a man who was recently sentenced to penal servitude at the Central Criminal Court draws attention to a matter we have commented upon before—the opportunity afforded by the Workmen's Compensation Acts for fraudulent claims. The man in question was not claiming under these Acts, but having some years ago become the possessor of a genuine bad knee, he had ever since turned it to account by tripping over brewers' ropes and other obstructions in public places, and then putting forward a claim in respect of his injured knee. Some fifty claims had been manufactured by him, and he had received some hundreds of pounds. The same procedure could be adopted by unscrupulous persons under the Workmen's Compensation Act, but with even greater ease, for whereas in accidents giving rise to claims against strangers contributory negligence would defeat such claims, under the Workmen's Compensation Act contributory negligence is no defence, and even wilful misconduct does not in all cases disqualify the claimant. Doctors have already foreseen this danger, for as workmen, servants, or employees in general are not subjected to medical examination on taking service, medical men have pointed out that such an injury as a rupture may well be made the ground of claim over and over again. Those who employ casual labour are especially liable to be victimised by this kind of fraud.

Sanitary Legislation. THE various Public Health Acts are sufficiently intricate to render it difficult for the householder to recognise what liabilities he may be under, but, in addition to this, many municipalities have private Acts not always drawn in the clearest terms, which also have to be construed. In the recent case of Smith *v.* Greenwood (August Law Reports) the effect of the Bradford Improvement Act, 1873, had to be considered. Sect. 21 of this Act provides that where a dwelling-house shall be without a privy, water-closet, or earth-closet, or an ashpit of a construction and size approved by the Corporation, the Corporation may by notice require the owner of the house to provide such a convenience, or to make such alteration of the existing conveniences as may be required. Certain cottages within the borough, although without privies, etc., of the construction approved by the Corporation, had three privies and two ashpits for the seven cottages, which the magistrate had held to be sufficient. The Corporation gave notice that such cottages should be provided with a water-closet and an ashpit of authorised construction. It was contended that the section only applied where there was neither privy, earth-closet, nor water-closet on the premises, but the Divisional Court held that the Act gave the Corporation absolute discretion. This private Act goes farther than sect. 36 of the Public Health Act, 1875, for under that Act the sufficiency of the existing accommodation has to be regarded.

The Highgate Reservoir Failure. WE commented last week upon the absurdity of the suggestion made in reports of this mishap that the designer would take into account the counterbalancing pressure of water as a factor in his calculations, and pointed out the necessity for further information before any conclusion could be drawn as to the real cause of the failure. By the courtesy of Mr. J. Francis, M.Inst.C.E., of the Metropolitan Water Board, the responsible engineer for the new reservoir, we are enabled to state that, instead of having been completed and taken over at the time of the occurrence, as reported, the flooring and roofing had not been constructed, and somewhat less than half of the work remained to be executed. Mr. Francis states that the failure in the main wall was due to a slip which took place owing to the fact that the contractor had not realised what would be the effect of the pressure of the London clay upon his incomplete and green work. Thus it appears that the designs were in no way at fault, and our distrust of the explanation put forward in the Daily Press is fully confirmed. The facts connected with the mishap point clearly to the serious nature of the responsibilities attaching to contractors during the execution of important engineering works.

The Automobile Nuisance in France. THE following is the testimony of a French correspondent in regard to the manner in which French country places are being ruined by automobiles. Our correspondent had been taking a holiday in Normandy, and writes:—"Je suis revenu de Normandie, complètement écœuré. Il n'y a plus moyen, en France, de se promener. Tout est envahi par l'automobile, et les belles routes que j'aimais à parcourir jadis sont devenues impraticables. La vitesse insensée des automobiles, le nombre de plus en plus grand de ces néfastes véhicules, la poussière qu'ils soulèvent, sont autant de dangers et de causes d'accidents. Que sera-ce dans cinquante ans? Il est impossible d'appeler cela le siècle de progrès!" Matters seem to be almost worse in France than in England; but as to the question, "What will it be in fifty years' time?" we surmise that long before that time there will have been

such a popular demonstration of public indignation as neither automobilists nor the law can ignore.

Concrete Building Blocks.

EVERY new system of manufacture or construction competing with existing methods is sure to arouse hostile criticism, especially from the interests threatened. This is what happened at a meeting last month of the Dublin Industrial Association, when two gentlemen interested commercially in brick manufacture suggested that houses built of concrete hollow blocks are unhealthy because the atmosphere is both damp and cold, that "such houses are traps for breeding disease," and that the use of blocks diminishes employment for bricklayers. Personally we do not favour the creation of spaces which cannot be got at in the walls, floors, and other parts of buildings, but it must be admitted that hermetically closed spaces such as occur in concrete blocks do not appear open to the same objection. Well-made concrete is impervious to damp, and the air-spaces provided in hollow-block construction constitute most efficient insulation against the conduction of heat from the outside or from the inside of a building. Consequently the first objection cited at Dublin falls to the ground. The second allegation is really too wild for serious comment, and the third suggestion is one that we are surprised to find raised in these days of enlightenment, for it is now generally known that improved processes and methods tend to increase rather than to diminish employment.

Reinforced Brickwork.

THE advantages to be obtained by the application of steel as reinforcement in the joints of brickwork have been well known for many years past. We gave in Vol. LXXXVIII. of the *Builder* particulars of some remarkable buildings erected by reinforced brick on the Cottançin system in Paris; our columns have also borne evidence to the excellent results obtained by employing steel tension bands in brick floors, and we have also alluded to the weight-bearing capacity of reinforced brick walls as exhibited at Earl's Court a few years back. We now refer to the results of some simple tests conducted by Mr. W. H. Brown, of York, with the object of finding the most suitable form of reinforcement for the mortar joints of brickwork, and to demonstate the results obtained by its application. The first series of tests was conducted upon nine "mortar joints" or beams, each 2 ft. long by 3 in. wide by $\frac{3}{8}$ in. thick, made with 1 : 3 cement mortar. Of these beams three were plain, three were reinforced with one $1\frac{1}{4}$-in. strip of 18 B. W. G. hoop iron, and three with 18 B. W. G. wire netting $2\frac{1}{2}$ in. wide, the size of the meshes not being stated. The beams were placed on edge 3 in. apart, in sets of three, upon brick piers, giving the clear span of 18 in., and the results were that the plain beams failed under the load of 115 lb., those reinforced with hoop iron failed under the load of 231 lb., and those reinforced with wire netting withstood the load of 354·75 lb. without perceptible deflection. Other tests were conducted upon a reinforced brick wall, eleven courses deep, supported on brick piers 10 ft. apart, and having a cantilever portion with the projection of 5 ft. Exact particulars of the reinforcement are not stated, but the joints were probably reinforced with wire netting of the dimensions mentioned above. This wall carried the load of 15,300 lb. between the supports and 3,360 lb. on the cantilever portion, without signs of deflection or fracture. A further test to find the lateral resistance of a piece of $4\frac{1}{2}$ in. reinforced brick wall, 3 ft. long by 2 ft. wide, showed that the load of 4,144 lb. was required to cause failure. Although conducted in somewhat homely fashion these tests are not devoid of interest, and serve to illustrate the increased resistance to be secured by the application of reinforcement to brickwork.

Colour in Architecture.

AT the meeting of the National Association of Master Painters at Liverpool, Mr. Halsey Ricardo read a paper embodying his well-known views on the desirability of having more colour in our architecture, with which we are in great measure in sympathy; but we feel some anxiety at seeing such a paper read before an Association of Master Painters, *i.e.*, "painters" in the usual trade sense of the term. Mr. Ricardo says good colour is easy to get, and refers (a rather doubtful comparison) to the prevalence of colour in street posters as a proof of it. But if it is meant that our house fronts are to be supplied with colour by means of paint, that of course is "not difficult to get," but it makes an end of monumental architecture. If there is to be more colour in our architecture, it must be by means of structural polychromy, which, though desirable in cities, is costly. In regard to Mr. Ricardo's remark that the children in the East grew up among brightly coloured buildings, and were thus habituated to colour, that is quite true; but it must be remembered also that where there is much colour in a national architecture there are generally no mouldings, or very poor ones.

Regent's Canal and a New Bridge.

ON September 18 was opened the new bridge which replaces the old narrow brick-arched bridge across the Regent's Canal in Warwick-avenue, at the west end of Maida-hill West. The work comprises a trough bridge, constructed of steel, concrete, and brick, having a span of 30 ft. and four pylons at the abutments, a toll-keeper's office and new approaches, and was carried out under the superintendence of Mr. E. B. B. Newton, Surveyor to the Borough of Paddington, at a cost of 8,000*l*. The London County Council contributed 2,834*l*. conditionally upon the roadway being made wide enough for conduit tramway traffic. Nash projected and planned the Regent's Canal in 1812, as part of his scheme for the laying-out of Regent's Park, and for the purpose of effecting water communication between the Thames at Limehouse and the Paddington branch of the Grand Junction Canal, which had been opened in July, 1801. James Morgan, the engineer, finished the Regent's Canal as far as the Regent's Park basin in 1814, and completed it to Limehouse eight years afterwards. The uncommon group of the three old bridges, the basin, and the island at this spot suggested the name of "Venice in London" to Robert Browning, who during the interval 1861-1887, lived opposite, at No. 19, Warwick crescent.

"Pope's Villa," Twickenham.

IN the grounds of the house by the river-side at Twickenham, which will be offered for sale by auction next month, are the grotto and the cave which are associated with the poet's memory. Pope bought a life-interest in the property, and there he passed the latter twenty-five years of his life. The house was purchased by Sir William Stanhope, who added two wings to it and enlarged the garden, and having passed in turn to his son-in-law, Lord Mendip, and to Sir John Briscoe, Bart., was bought in 1807 by Sophia, Baroness Howe, daughter of the famous Admiral. Shortly afterwards Lady Howe pulled down the house and replaced it with another close by, and dug up the grounds and gardens. Pope's "Egerian grot, where, nobly pensive, St. John sat and thought," forms a passage beneath the main road from Brentford to Teddington. His gardener, John Serle, published (1745) a pamphlet with a plan of the garden as in his master's time, a view of the grotto, and a catalogue of the ores, spars, and stones, with the names of the donors of the specimens. In the copy of the Homer used for the translation—owned by Walpole—Pope had sketched the view from the grotto, showing the church, eyot, and part of the village. Ten years ago, in the course of some alterations of the later house, carried out for Mr. H. Labouchere, M.P., was found, over one of the entrances, a stone covered with concrete; the removal of the coating revealed a deeply-cut inscription: "On this spot stood, until 1809, the house of Alexander Pope. The grotto that formed its basement still remains. 1848."

Pictures as Decoration.

WE have often commented on the increasing tendency of modern art-critics, and of some artists also, to represent decorative design as something entirely superior to pictorial art; a position from which we entirely dissent. We are glad to notice a protest in the same direction from an amateur, Sir William Forwood, who, speaking at the House Painters' Association meeting, after complaining (surely with justice) that the "new art" was striving after originality rather than beauty, went on to mention an instance of a house built and decorated for a private owner, who was told, when it was completed, that such was the character of the decorations that he must not have one picture in it. We can quite believe the story; the modern decorative artist despises pictures, or only condones them so far as they will come into his scheme of decoration. Sir W. Forwood believes that there is no more beautiful form of decoration than pictorial decoration of the highest class, and he did not believe that decoration would be proceeding on right and true lines until it recognised that and would

lead up to the picture instead of turning it out of the house and discarding it. Which is both good criticism and good common sense.

AFTER TWENTY YEARS.*

LONDON is built on the leasehold system, therefore a monumental character cannot be expected to evince itself. The temporary shifting character of modern occupations tends every year to become more conspicuous, and the leases of property will perhaps become shorter than they used to be. But, although, as already remarked, the American spirit of temporary use of buildings for the purpose for which they were built is gaining ground, still the purely American method of construction—the huge iron cage with a flimsy skin of terra-cotta or cement—has not apparently become common in England as yet. English dwelling-houses, at all events, are still built in solid materials, not "engineered."

At the corner of the Green Park, facing old Devonshire House, stands a new block of building strangely "foreign" looking—a type of design with an arcaded lower story, common enough on the Continent, and wherever the continental nations have settled, but hitherto a rarity in England. It might have been supposed that England, with its deplorable climate, would have been the first place in the world where the arcaded street would have been adopted, instead of being the last. Here, however, at one end of Piccadilly stands the first important attempt to introduce the most convenient, the most picturesque, and, at the same time, the most monumental feature of modern cities. In noting this novelty in street architecture our colonial friend remarks upon the change in the planning of the small suburban house for the million. Twenty years ago the speculative builder still dug out the site of his houses, or formed a raised road in front in such a way as to leave a sort of fosse around them, bridged over by steps and a platform before the entrance door. Each little dwelling seemed protected from the highway by the "area" with its iron palisade. Nowadays this curious characteristic of the English towns seems no longer in vogue; the little cottages of Croydon or Kingston are much more like their more ancient prototypes in appearance, however much they may differ from genuine country cottages in plan and domestic arrangements. Owing to the comparative cheapness of building sites at a distance from Charing Cross, a few feet extra can be allowed in the area covered by the house, and it is found more convenient to have the kitchen at the back of the plot instead of in the "basement." The improvement in the appearance of this type of building is certainly very great, for nothing could be more unsatisfactory from an architectural point of view than the older fashion of rows of houses half-sunk in the ground—a fashion presenting problems in design which have never been satisfactorily solved.

Turning to another and altogether different branch of architectural study, our returned architect found much to interest him in the last echoes of the great struggle which once raged between the "restorers" and the "anti-restorers." Twenty years ago the Sage of Coniston with his followers and the Society for Protecting Ancient Buildings were attempting the Herculean task of stemming the full tide of wholesale restoration then sweeping over the land. In those days old churches and monuments of bygone times were often to be found in a state which suggested ideas of English social life and institutions, even then almost passed away. The parish church—like the temple of an ancient world—constituted the public monument of every village. The curious aristocratic traditions of the community were still surviving in the carefully preserved freehold rights within the building, although intramural sepulture was practically abolished. In some very untouched instances the masterpieces of the herald painter might still be found hanging in the corner of a family chapel. The "hatchment," which still survived into the sixties and seventies of the last century and gave so much picturesqueness—and implied so much social distinction—to

*Concluded from page 309.

portions of our old churches, has now probably completely disappeared.*

Twenty years ago there still remained in some old churches the family pews of an earlier generation, and the "squire" of a parish still retained his right to the chief seat in the synagogue. At the present day all such arrangements are almost completely banished from the modernised village church.

Revisiting the West of England after a quarter of a century our returned colonial was unable to discover a single unrestored church within a circle of ten miles radius of his home—and even in a district still many miles from any railway station. In some cases the churches had been "restored" more than once during the Victorian era.

The restored parish churches of England have a very close resemblance, as far as their present condition is concerned, to the "monuments historiques" of the Continent. There must always be a certain historic interest attaching to such buildings, although the ancient fragments, often arbitrarily rearranged in their rebuilt walls, give a very misleading impression of their original character. The architectural student of the future can only be expected to look upon them in a sense quite different from that of the student of the "Gothic revival" period, and it is to be hoped his impressions, if less archæological, may still prove profitable in an art sense.

In some cases the ancient tower of a village church, its pristine solidity affording less excuse for alterations, has escaped with little damage from the restorers. Such a village monument will still afford a pleasant object of study for the archæologist, the artist, and, of course, the architect. But the interiors of these buildings are, as a rule, exceedingly deplorable and depressing. The uninteresting floor of tiles which has replaced the former tombstones, the cheap ecclesiastical decorations, and, above all, the inevitable "pitch-pine" woodwork, now shabby and dirty with age, give a look of poverty and nudity to historical monuments which in former days would have interested the visitor on account of very different associations.

To our returned colonial architect the whole subject, still occasionally referred to in the Press, seemed to resolve itself into the question: "Is there anything now left to restore, and, consequently, is there anything left for the anti-restorers to protect?" From his own experience in visiting a representative countryside of old England, he would be inclined to reply in the negative. The warfare between the "restorers" and the "anti-restorers" may be considered at an end, as far as any legitimate *casus belli* can be considered to exist in the restored village church. Any further "restorations" can but take the form of renewing or altering the work of the country builder of the latter half of the XIXth century, and that is a type of art which at present excites but little interest, although in its turn it may become, one of these days, quite a curiosity.

The cathedrals and larger churches of England have, of course, suffered lamentably from the various restorations of recent years. Wrecked during the XVIth and XVIIth centuries, they survived in a mysterious manner until the religious revival of the latter half of the XIXth century. Then came the era of Sir Gilbert Scott and his followers, and these buildings, equally with the parish churches, were changed about a great deal to suit modern ideas, whilst their architectural details were restored *ad libitum*. Examples such as St. Albans Abbey are, perhaps, fortunately exceptional, and in a general way the restorations of very recent years have been much more conservative.

The future of our ancient churches afforded a certain amount of speculation for our returned architect. To him their probable fate seems rehabilitation under a mediæval garb, as it is almost impossible to suppose the art-loving public of the present day will care to preserve the dingy lifelessness of the Victorian "restorations." Indeed, there are sufficient evidences of such a movement even now. But the air of age and antiquity can never be regained, and the historical associations are gone along with the innumerable monuments which have been swept away as lumber unfitting to be seen in a "restored" church. With the accumulated wisdom of past generations of architects of the Gothic revival, the men who will be called in to improve the appearance of our restored churches will probably continue to work within the traditions of that latest mediæval style which is still so much in vogue, and which seems to harmonise best with the usages of modern English people.

To speculate upon the future of secular architecture is almost impossible. Religious architecture is influenced by certain laws of propriety and sentiment; secular art is governed neither by sentiment nor appropriateness, and at the present day we may also say that questions of cost have but little influence upon its vagaries, provided they can be proved "to pay." As a consequence, the prospect is not promising to old-fashioned spectators who can only hope that England may be preserved from the "Style Nouveau," and that in lieu of anything so bad her vast "cottage cities" may continue to spread over the earth's surface with nothing worse than the so-called "Queen Anne style" to embellish them.

On returning to his adopted country, our colonial *confrère* sums up his impressions and opinions in the following sentences:—"After twenty years of absence from Europe, I am much impressed with the fact that all Europeans are now very much more alike than they used to be. They eat and drink alike—the English drink much more wine, and the Italians much more beer than they used to; they dress alike—the boys in Naples wear precisely the same caps as the boys in London; and now they are building the same little two-storied houses in England, France, Germany, and Italy. The three great problems of what shall we eat and drink, wherewithal shall we be clothed, and in what manner of houses shall we be lodged, which are perhaps amongst the greatest considerations in existence, are for the present solved. As far as the modern architecture of Europe is concerned, there is little to distinguish between one country and another. In the colonies we now reflect this condition of affairs, and it is equally difficult to detect the nationality of a man except by speech, and that only amongst the older colonists; the younger generation is polyglot and invariably speaks the English best of all. The colonial house is also modelled on English ideas more than on any other.

"European art aspirations and ideals are becoming crystallised to a great extent. The 'Gothic' style is considered as much as ever the religious or hieratic mode of expression, whilst the infinite varieties of the 'Classic' or 'Renaissance' are accepted as the only appropriate and possible forms for secular architecture. Twenty years ago there was more evidence of a desire on the part of architects to reproduce the models of former ages which they had studied with admiration, and this slavish imitation gave rise perhaps to the desire often expressed in those days for a 'new style.' At the present time an excellent 'new style'—not to be confounded with the 'Style Nouveau'—is very often apparent in the adaptation of the well-worn details of olden times to purposes for which they were not intended, and on a scale which produces a totally different effect. In other words, many modern architectural designs have a meritorious novelty and freshness about them in proportion to the way in which the ancient styles are adapted to modern requirements with appropriateness and taste. After all, why should there have ever been a craving for any 'new style' beyond this natural development—this healthy exercise of the art? On the

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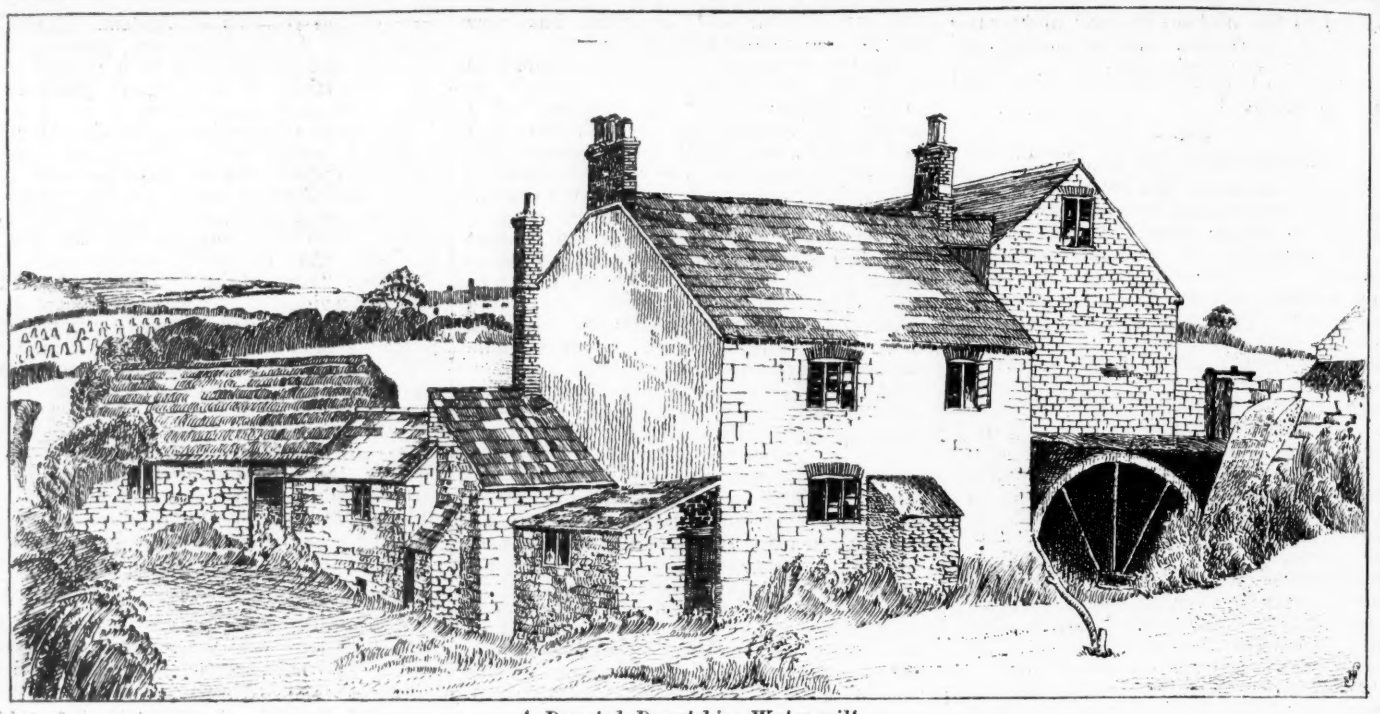
*This curious feature of our ancient churches—used also in the Protestant churches of Holland and Prussia—was always a square of canvas within a frame like an oil painting. It was always hung up by one corner lozengewise and not square with the wall to which it was attached. The square of canvas was painted with the coat of arms of the family of the person to be commemorated. The idea seems to have originated in the trophy or armorial badges borne in a funeral procession and afterwards set up in the church where the interment took place. Quaint heraldic rules were observed in the painting of the "hatchment." The background of the coat of arms was to be half black and half white in the case of husbands and wives, the dead husband being represented by black on the right side, the dead wife by black on the left. The background for bachelors and maidens was entirely black, but a lady had no claim to a crest, so her coat of arms was to be surmounted with a knot of ribbons. In the case of the last survivor of a family being commemorated the crest over the coat of arms was to be replaced by a death's-head and cross-bones. In "Chambers's Encyclopædia," Ed. 1780, fol., will be found designs for "hatchments" and rules for painting them, etc.



A Deserted Dorsetshire Water-mill.

Continent many modern cities are defaced with the puerilities and foolish vulgarities of the 'Style Nouveau,' but as most of these monstrosities, the creations of a degenerate taste, are constructed in open defiance of the ordinary laws of stability, their speedy downfall may be safely predicted. In a few years they will have disappeared into the limbo of the 'Baroque,' the 'Roccoco,' and the 'Mid-Victorian' styles, whilst the old standards will remain as heretofore, unchangeable as the humanity which has created them.

"The uglifying of Europe, already referred to in these notes, is a matter less easy to prophesy about than its architecture. The Eiffel Tower of Paris will probably have to be removed ere long for obvious reasons of instability—the similar tower threatened as an eyesore for the neighbourhood of London but never completed is now being removed. The lives of such atrocious monstrosities are fortunately short, as a rule, and we may therefore perhaps console ourselves with the thought that they cannot be classified as monuments in any sense. Alas! it is different with the hideous accompaniments of modern commerce and industry. The gasometer and the factory are monuments of modern life which admit of no amelioration, and, although their growth takes place chiefly on the sides of the railways, yet there seem few, if any, horizons in the most beautiful parts of Europe on which a chimney-stalk with its long trail of smoke may not be detected. Italy, once the loveliest of countries, is now quite studded over with these dreadful evidences of commercial prosperity. And then the advertisements, in every form of type and lettering, of the products of these innumerable manufactories which cover the land from one end to the other! Twenty years ago there was nothing of this kind—what will the valleys of the Apennines, the plain of Lombardy, be like in appearance twenty years hence?

"Ruskin, in one of his books, extols the charms of old water-mills, their always lovely surroundings, their non-interference with the peaceful landscape of other days; and he strongly recommends those who have the opportunity and the need to carry on their business with a water-mill in preference to the soul-destroying use of steam. It is not perhaps recorded that any person ever speculated in a water-mill for the reasons which Ruskin urged, and from an ordinary commercial point of view some degree of bankruptcy amongst mill-owners has consequently perhaps been avoided. It would be interesting to know Ruskin's changed ideas upon the whole subject if he could revisit his beloved Italy at the present day, *viâ* the Mont Cenis route. The traveller by this oldest of railways across the Alps still sees many of the Savoyard villages from the railway-carriage windows in the condition in which they stood in Ruskin's days; but higher up the pass, as the tunnel is approached, he is astounded by the sight of enormous iron tubes, some 6 ft. in diameter, which trail across the landscape in the most extraordinary manner, following the rocky outlines, passing into the valleys, and always terminating in a huge factory building. These tubes are painted a lively red, and at a distance of a mile or so have naturally a close resemblance to huge worms or snakes. Constructed in sections, they seem easily adapted to any requirement, and not only bend about the obstacles of a mountain side, but are easily carried over a stream or a chasm in an arched form. The object of these singular features in the modern landscape is to serve as water conduits to modern water-mills. What would Ruskin have said to such a development of one of his pet theories?

"Twenty years ago the Italian Riviera was a wild and rocky shore with sandy bays, where the story of 'Monte Cristo' was still easy to realise; nowadays its wide, sandy reaches are occupied as 'slips' for ocean-going steamers, whose gaunt forms are being put together with electrically hammered rivets. *Eheu fugaces!* A new heaven seems to have come over the Tyrrhine Sea. Does anyone now read 'Monte Cristo' in the cheap bathing resorts upon its modernised shores?

"Journeying eastward, the last European city to be passed is usually Naples. This immense community always has been, and perhaps always will be, the *ne plus ultra* of a deplorably degenerate humanity. This, in every sense of the word, is the 'East-end' of all that is European. Conservativism is but natural in an assemblage of all the poorest and least intelligent elements in the modern world; and, as a consequence, some parts of Naples, in spite of the city being cut through in all directions by most necessary new streets and boulevards, retain their ancient squalor and filthy appearance. The masses of Naples are evidently quite unaffected by any modern developments, perhaps their poverty is too great, or perhaps they are too indolent. The immense 'Fondacci,' or tenement houses, survive in all their repulsiveness, and but little change has taken place in the appearance of the city proper. Its suburbs are, however, completely altered, and the immense number of small villas of the usual modern European description springing up along the railway to Salerno, and nearer the town in the neighbourhood of the 'Vomero' funicular, or on the road to Portici, give a very modern appearance to these localities. Thus, in Naples, the traveller, as he bids adieu to Europe, may perhaps see better than elsewhere the modern spirit which is asserting itself all over the world in our XXth century, contrasted with the mode of living in a great European community of twenty years ago."

A DESERTED DORSETSHIRE WATER-MILL.

THIS is a sketch of a picturesque water-mill at the little coastguard station of Seatown, Dorset, halfway between Charmouth and Bridport. In its colour, which unfortunately we cannot give, it would have delighted such an artist as the late Mr. Boyce.

Why it has been deserted as a mill we do not know; it was at work last year. We understand that it is now to be "done up" as a dwelling-house.

THE ENGINEERING AND MACHINERY EXHIBITION AT OLYMPIA.

THOSE who were present at the opening of the second Engineering and Machinery Exhibition on Thursday last week must have been struck very soon after entering the building by the complete manner in which nearly all the stands had been prepared in advance, and by the evident favour with which the undertaking has been regarded by British engineering firms. An opportunity was also given for the visitor to observe the liberal support accorded by professional engineers, as demonstrated by the presence of the presidents and officials of the leading engineering institutions, and of many well-known engineers and professors of engineering, at the opening ceremony.

Notwithstanding the evident success of the exhibition, it must be admitted that there is still a little vacant space on the ground floor of the main hall and the annexe, and that the galleries are quite unoccupied. No one could expect actual full-sized exhibits exemplifying the productions of firms building ships, bridges, and other gigantic structures; but there is no reason why the builders of locomotives and rolling stock for railways and tramways, iron and steel masters, rolling mill proprietors, makers of steam boilers, steam engines, and heavy electrical machinery should not be adequately represented at Olympia as they have been at other exhibitions. In the face of various conspicuously absent classes of work we cannot quite agree with the complimentary remark made after the opening ceremony by Sir Alexander Kennedy, that "the exhibits cover practically all departments of engineering industry." At the same time, we grant that many such departments are covered more or less adequately, and that the exhibits collected this year are of great interest, fully deserving examination by engineers, architects, builders, and others concerned directly or indirectly in practical applications of mechanical science.

As happened last year, machine tools occupy the lion's share of the exhibition, the most imposing array being that of Messrs. Schuchardt & Schutte, whose main stand near the middle of the large hall is rendered prominent by a framed structure of polished

oak, and accommodates a collection of electrically-driven machine tools, while a smaller stand near the entrance to the annexe also serves for the display of tools and accessories. Among other excellent exhibits of machine tools deserving special mention for their comprehensive nature are those which have been brought together by Messrs. Burton Griffiths & Co., C. Churchill & Co., A. Herbert & Co., Ludwig Loewe & Co., Pfeil & Co., and Selig Sonnenthal & Co. Speaking in general terms, these stands and several others that might be mentioned contain examples of the most perfect tools that have been produced up to the present time; but many of the smaller exhibits are equally deserving of attention. By way of illustration we may mention the new slotting machine of the Smith Slotting Machine Company, in which a milling cutter is applied so as to offer an entirely novel method of cutting symmetrical slots in metal, without chipping, filing, and broaching; the universal grinding machine of Messrs. Macdonald, Adamson, Swinburne, & Co., the first tool of its kind constructed without overhead gearing; an entirely novel form of screw milling machine by Messrs. John Holroyd & Co.; the hammers, drills, and grinders of the Consolidated Pneumatic Tool Company, and the "Dreadnought" self-clearing milling file of the Patent File and Tool Company, capable of cutting two or three times faster than an ordinary file.

Woodworking machinery is also well to the front on stands scattered over different parts of the hall. Messrs. J. Sagar & Co., Kirchner & Co., and J. B. Stone & Co. each make a good show of their planing, sawing, sandpapering, and other well-known auxiliaries; Messrs. M. Glover & Co. have a small stand where saw and planing machine guards may be seen and Mr. W. H. Perkins exhibits a selection of woodworking benches and vices. A machine that should on no account be overlooked is the patent mechanical woodworker for pattern work, shown by Messrs. Wadkin & Co. This tool is applicable to the varied requirements of the pattern maker. Visitors to the stand will have every opportunity of judging the capabilities of the machine in actual work.

We turn now to a few other exhibits appealing particularly to architects and building contractors. Messrs. Henry Pels & Co. once more show a selection of shearing, cropping, and notching machines for rolled steel sections, all these being very neatly built with steel frames, and driven by electric motors applied in such manner as to make each machine entirely self-contained.

On the stand of Messrs. Craig & Donald will be found models of flattening, bending, shearing, notching, and punching machines for structural steel. Messrs. R. Becker & Co. make a feature of shearing, punching, cropping, and cold sawing machines, and a hydraulic pipe-bending machine. The Light Electric Motor Company exhibit small electric drills and an electrical brush for cleansing masonry buildings.

Messrs. Arthur L. Gibson & Co. present examples of Kinnear steel rolling shutters, Kinnear radiators, Burt ventilators, B. & S. folding gates, Cabots sound-resisting insulating quilt, interlocking rubber tiling, and Crescent expansion bolts for securing ironwork to masonry. Messrs. Murray Lotz and Co. exhibit models of their Phœnix patent buildings, in which the timber members are provided with iron connexions, obviating mortising and tenoning, and generally facilitating erection. The only manufacturer thinking the subject of glazing to be of interest to engineers is Mr. S. Deards, whose system is represented in the annexe. Some ingenious sheet steel and expanded metal lockers and patent bins for storerooms are shown by Messrs. Merritt & Co. and Messrs. Estler Bros. respectively. The Margewood Lock Company show their improved lock, which we described fully in a previous issue; but our readers may here be reminded that the essential improvement it embodies is that, instead of being separate working parts, as in the ordinary lever lock, the bolt and levers are combined to form one part working over a lever stump with a double bearing in the case.

The simple fire protection and escape appliances of Messrs. J. H. Heathman & Co. and Messrs. Hunt & Mitton and the cement tester of Messrs. W. H. Bailey & Co. should not be overlooked by the visitor who may also be interested in the small cold chamber and self-contained ice-making plant by Messrs. L. Stearne & Co., the only exhibitors of such apparatus.

Taking next sanitary engineering, the visitor will find on the stand of Messrs. J. Defries & Son a model of the Equifex steam disinfector, examples of spray disinfectors, and Pasteur filters; on the stand of Messrs. Thwaites Bros. one of the Clayton fire extinguishing and disinfecting machines; in the space occupied by Messrs. W. Summerscales & Sons a small selection of modern steam-laundry machinery; and not far off a working demonstration of Mr. James D. Prior's method of heating bedrooms and passages by waste heat from a sitting-room fire.

Ventilating fans are shown by Messrs. W. G. Walker & Co., the Standard Engineering Company, and Messrs. Bergtheil & Young. The last-mentioned firm have a distinct novelty in the form of an electric punkah, invented by Colonel Bandy, which appears to get over the difficulties hitherto experienced by those who have sought to reproduce by mechanical means the peculiar motion of the hand-operated punkah.

There is not much at Olympia in the way of hoisting appliances such as architects generally require for the equipment of buildings. Builders and engineers, however, are more favoured by the following exhibits:—Mork overhead runways and trolleys (the Mork Patent Pulley Block Company); wire ropes and differential pulley blocks (Messrs. Bullivant & Co.); vertical hoist on stand, lifting 3,500 lb. with air at 80 lb. per sq. in. (Messrs. Reavell & Co.); steam and electric winches (Messrs. Clarke, Chapman, & Co.); electric hoist and triplex pulley blocks (the Fairbanks Company).

Electric light fittings are virtually in the hands of three firms—Messrs J. Dugdill & Co., who have a good selection of movable electric light fittings of convenient types; the Walsall Hardware Manufacturing Company, devoting attention chiefly to steel conduits and fittings; and the Linolite Company, whose specialty is a lamp supplied in tubular form so that it can readily be applied to cornices, picture rails, and in any required position. The lamps are placed end to end in a semicircular polished aluminium reflector, the edges of which are rolled into beads carrying and protecting the wires. For lighting shop windows and rooms in a pleasing and unobtrusive way there is nothing better than this system.

Many of our readers are naturally interested in steam boilers and engines, and it is generally believed that these appliances represent important branches of engineering. If we are to judge by the exhibits at Olympia the notion is quite a mistaken one, for beyond a few diagrams on one tiny stand no boiler makers are in evidence, and only four firms have submitted examples of steam engines. Messrs. W. H. Allen & Co. show a three-crank three-cylinder compound vertical enclosed type engine, with forced lubrication, capable of developing 300 brake horse power at 450 revolutions per minute; Messrs. E. S. Hindley & Sons exhibit three engines of different types; Messrs. Greenwood & Batley make a feature of the De Laval steam turbine direct-coupled to a dynamo; and the Pittler Universal Rotary Machine Syndicate show an interesting type of rotary steam engine which, it found practically successful, ought to be of great service in connexion with motor vehicles, as the new machine is almost noiseless in operation.

Gas and oil engine manufacturers appear to be scarcely less unwilling than boiler and steam engine makers to identify themselves with the engineering and machinery industries of the country, for only five firms exhibit internal combustion motors at Olympia. The stands of Messrs. Crossley, Heatly-Gresham, Hindley, Hornsby, and the National Gas Engine Company all deserve the attention of visitors, particularly of those interested in small power installations.

Power-transmission appliances are very inadequately represented, the chief exhibitors in this class being the Empire Roller Bearings Company, the Hyatt Roller Bearing Company, Messrs. A. Warden & Co., and Messrs. Charles Wicksteed & Co. A very fair collection has been brought together of cocks, valves, and gauges for various purposes, and also of engineering sundries. Pumping machinery is most worthily exemplified by the exhibits of Messrs. W. H. Allen & Co., T. & E. Wannbacher, the Albany Engineering Company, the Pulsometer Engineering Company, but a considerable number of small pumps will be found scattered over the stands of other firms. The most striking exhibit is that of the Pulsometer Company, who show side by side the largest and the smallest of their well-known pumps, the former capable of delivering 150,000 gallons an hour, and the latter 1,000 gallons in the same time. A handy little force and lift pump for domestic and horticultural purposes, shown by the Lamp Pump Syndicate, is actuated by steam at atmospheric pressure generated in a boiler about the size of a large kettle, and heated by a paraffin stove.

Electric motors are very poorly represented, possibly because the chief makers may be saving up their energies for the electrical exhibition which will presently be held in Manchester.

The examples of mining machinery, discoverable after some trouble by the diligent searcher, certainly do not justify the announcement made in the introduction to the official catalogue that "mining appliances form a very important part of the present exhibition."

Iron and steel producers are among conspicuous absentees. One looks in vain for examples of rolled steel sections and of structural steel work. Messrs. H. B. Whitehouse & Son, Messrs. Thomas Butlin & Co., and the Northamptonshire Direct Castings Company invite attention to samples of pig iron and castings, but so far as our observation has extended these are the only representatives of the British iron and steel making industries.

No notice of the exhibition would be complete without mention of the interesting loan section, and the General Post Office exhibit in the annexe, and of the space where Messrs. Siebe Gorman & Co. will give demonstrations of helmet diving in a large cylindrical tank provided with windows and lighted by electricity so that visitors may watch the operations from beginning to end. We must also add a word of appreciative comment upon the programme of lectures to be given during the continuance of the exhibition by Professor Henry Adams, Mr. Charles Bright, Dr. Leonard E. Hill, Mr. Percy Longmuir, and others.

THE IRON AND STEEL INSTITUTE:

THE PROGRESS OF THE INDUSTRY—TRADE UNIONISM AND PROTECTION.

[From Our Special Correspondent.]

Vienna, Monday Night.

THE opening session of the Iron and Steel Institute has been full of interest. The meeting is taking place in the lecture theatre of the Society of Engineers and Architects, where the first Vienna meeting was held a quarter of a century ago. The growth of the Institute in that period and the present prosperity of the industry in Great Britain and throughout the world are reflected in the present meetings. There are 450 English members of the Institute here, as against an attendance of 150 members at the first Vienna meeting. Mr. Bennett Brough, the able and courteous Secretary of the Institute, informed me this morning that the attendance was remarkable considering the long distance of the meeting from London. The Institute had a most cordial reception from the Minister of Commerce, representing the Austrian Government, and from the Committee of the Austrian Ironmasters, who have arranged a most delightful round of visits in Vienna and excursions to ironworks in various parts of the Empire. The rapid progress which has been made by the industry in recent years, the many and increasing uses to-day found for iron and steel, had evidently greatly impressed the Minister of Commerce (Dr. Josef Fort), who in welcoming the Institute remarked that our forefathers could never have imagined the thousandfold uses of to-day for the manufacturing of iron and steel. Mr. Kestranek, in welcoming the Institute on behalf of the Austrian ironmasters, made a happy reference to the fact that the father of the President (Sir Lowthian Bell) occupied the Presidential chair on the occasion of the previous visit to Austria. Sir Hugh Bell in fitting terms acknowledged the kindly welcome given to the Institute.

The technical business of the meeting

began with a graphic sketch by Mr. W. Kestranek of the progress of the industry during the past quarter of a century. Mr. Kestranek spoke frankly as to what he considers to be the effect upon British trade of the action of our trade union organisations and our free trade policy—references which will not be the less interesting because they lie outside the scope of the Institute's work. Mr. Kestranek, like most manufacturers on the Continent, has little sympathy with trade unionism, and still less with the policy of free imports. He claimed that the Austrian system of high protective duties had given the Austrian iron and steel manufacturer complete control of the home market.—Sir Hugh Bell dealt with the incident most diplomatically, remarking that he was precluded by the constitution of the Institute from referring to the fiscal question, upon which, he added—amid laughter—there were differences of opinion.

In the afternoon the members were taken for a drive through Vienna, and were received at the Town Hall by the Vice-Mayor.

Reception and Welcome of the Institute.

The reception of the Institute was marked by much cordiality on the part of representatives of the Government and of the Austrian ironworks.

Mr. W. Kestranek, Central Director of the Prager Eisen-Industrie-Gesellschaft, in opening the proceedings, offered the Institute a hearty welcome to Vienna after a lapse of twenty-five years. Nothing could be more suitable than to see Sir Hugh Bell occupying the place which his father (Sir Lowthian Bell) did twenty-five years ago.

Dr. Josef Fort, the Minister of Commerce, expressed his pleasure on behalf of the Government in welcoming to Vienna the world-famous Iron and Steel Institute. He recognised the importance of the work done by the Institute in the last thirty years. The progress which had been made during that period in the production of iron and steel made the present the most memorable epoch in the history of the trade, because never before had such progress been made. The rapidity of the progress could never have been dreamt of by our forefathers, who could never have imagined the thousandfold methods of employment for iron, and even though it might sound like a paradox, the utilisation of iron and steel had made for the furthering of peace. The Institute had done much in applying science to actual work, and the names and work of Bell, Carnegie, Bessemer, and Taylor would always be intimately associated with the history of the trade. In conclusion, he expressed good wishes for the success of the Institute.

The Vice-Mayor of Vienna also joined in the welcome to the Institute, and Mr. Kestranek presented Sir Hugh Bell with a gold badge of office.

Sir Hugh Bell thanked the Reception Committee for the kind greetings with which they had been received in that delightful city, and Mr. Kestranek for his gift to himself.

The progress of the iron and steel industry in the quarter of a century which lies between the first and second Vienna meetings was told in a charming manner by Mr. W. Kestranek, general manager of the Prager Eisen-Industrie-Gesellschaft. In that period the production of iron and steel has advanced by leaps and bounds throughout the world, and, notwithstanding this remarkable progress, the supply has hardly kept pace with the demand. In that period the annual production has grown from 21,000,000 metric tons to 61,500,000 metric tons, and the demand is growing at an ever-increasing rate. The favoured position which Great Britain, the United States, and Germany hold in the iron and steel industry was happily put. "It can be taken as an axiom," said Mr. Kestranek, "that the development of the iron industry of a country in relation to the consumption depends more on the richness of its fuel resources than on an abundance of iron ore. Thus it is seen that countries such as Sweden and Spain, which are rich in ore and poor in fuel, export the greater part of their output of ores to countries rich in fuel, and are, in proportion to their wealth in ore, only small producers of pig iron. Other countries, on the other hand, such as Great Britain, which depends to a large measure on the importation of iron ores, and Germany, which also has to import considerable quantities of ores, occupy a leading position. It is unnecessary to mention the happy United States, which rejoices in the possession of an abundance of ore and of coking coal, and for this reason naturally occupies the leading position. It therefore appears to me that the quality and quantity of fuel available are more decisive factors in the industrial development of the iron trade of a country than wealth of ores."

Mr. Kestranek made two references to what he considered to be the effect upon the British iron industry of trade union organisation and of our fiscal policy.

"I believe that the development of the British iron trade would have been far more successful if the introduction of technical improvements had not been hindered by the action of trade organisations."

Coming to the fiscal question and the effect of protective duties, Mr. Kestranek remarked, "Should anyone feel astonished and filled with envy at the height of the duties protecting the Austrian iron industry and at the high prices obtained in the country for iron manufactures, it must be remembered that a large share of the profit is absorbed by the State and other corporations, such as land, district, and commune, in the form of taxes and rates. The Prager Eisen-Industrie-Gesellschaft, together with the Bohmischen Montan Gesellschaft, during the last eight years paid to the State and to other corporations mentioned 21,840,000 crowns, and to the shareholders 62,650,000 crowns. In this regard the Elysian fields must not be sought for in Austria, but are to be found in the United States, where the iron industry, working under the most favourable conditions both of production and protection by high duties, is so little liable to public taxation. As a result of the import duties protecting the Austrian iron industry Austria is completely closed to foreign iron, and thus we see that, whilst only twenty-five years ago a considerable proportion of the home consumption, even for those manufactures in which high quality was imperative, had to be drawn from foreign countries, at the present time home products take their place. Twenty-five years ago the inland railways purchased the greater part of the tyres required, especially for passenger locomotives, in foreign countries; at present we find none but home tyres in use. At that time in the workshops English tool steel was the most prized, but now it has been completely superseded by the highest qualities of steel made in Austrian ironworks. Formerly the Austrian War Office purchased cannons, projectiles, and armour plates from the leading producers of foreign countries, and the warships of the Monarchy were almost entirely built of foreign materials; at the present time home manufacturers of armour plates, of cannons, and of projectiles, whose products do not need to fear competition with those of any other country, are available, and warships of the most modern construction, whose parts from keel to topmast are manufactured in home workshops, navigate our seas. Thus in the last twenty-five years Austria has made herself entirely independent of foreign countries, both as regards quantity and quality of the iron manufactures required in the country. The system of protective duties has therefore completely fulfilled its principal object."

Sir Hugh Bell moved a vote of thanks to Mr. W. Kestranek for his graphic sketch of the progress of the Austrian iron and steel trade during the last twenty-five years. He was precluded by the constitution of the Institute from referring to the fiscal question raised by Mr. Kestranek, upon which they might find many differences of opinion; but there would be no difference of opinion in thanking him for his brilliant sketch of the Austrian iron trade.

Mr. H. Bleckley, Warrington, formally seconded the vote of thanks.

Mr. Selby Begg, Newcastle-on-Tyne, who seconded, briefly referred to the great development of the electrical industry in Austria during the past quarter of a century.

The vote of thanks was unanimously accorded.

Professor H. Banerman, London, gave a description of the Erzberg, or Ore Mountain, of Eisenerz, in the Eastern Alps, which he said was the most interesting iron ore deposit in the world.

Professor F. Berwerk, Vienna, presented a paper on steel and meteoric iron, and Baron H. von Juptner on the application of the laws of physical chemistry in the metallurgy of iron.

Vienna, Tuesday Night.

The municipality of Vienna has joined with the Austrian ironmasters in entertaining their guests of the Iron and Steel Institute with princely hospitality. After the close of Monday's session the members and the ladies accompanying them were taken for a drive through Vienna and on the Prater, visiting the historical museum, with its memorials of Schubert and Strauss, and the Town Hall, where the party was received and welcomed by the Vice-Mayor and other members of the municipality. The Lord Mayor is recovering from a serious illness, and has been unable to take part in the reception, either at the Town Hall or at the business meeting in the lecture theatre of the Society of Engineers and Architects. The council chamber and other apartments were viewed, after which the Vice-Mayor held a reception. Refreshments were served in the large hall, a Viennese band occupying the orchestra. In the morning the ladies who are visiting Vienna were given an opportunity of visiting Baron Alphonse Rothschild's gardens and greenhouses on the Hohe Warte.

In the evening the members of the Institute and the ladies accompanying them were the guests of the Austrian Reception Committee at a special performance at the Imperial Opera House of Lohr's "Queen of Sheba." The Opera was crowded in every part, and presented a magnificent ensemble. A brilliant rendering of the "Queen of Sheba" aroused much enthusiasm, Mr. Dennith as King Solomon and Miss Bland as the Queen of Sheba being repeatedly recalled at the end of each act.

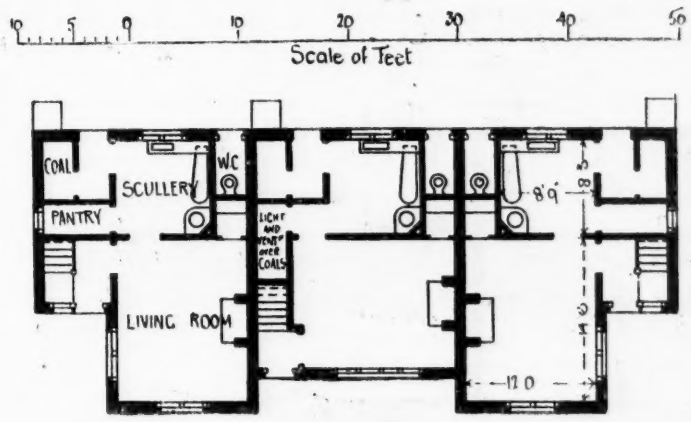
The business meeting of the Iron and Steel Institute was resumed in the lecture theatre at the house of the Society of Engineers and Architects. Sir Hugh Bell, President, was in the chair.

Mr. C. E. Stromeyer, of Manchester, gave the meeting the results of some experiments on the ageing of mild steel. The brittleness revealed by the bending of nicked samples, more especially if the plates were maintained at a fairly high temperature as in boilers, suggested that caulking, particularly that injudicious caulking which grooved the underlying plates, might initiate a local brittleness which, after a time, might endanger the boiler if severely stressed. This might account for the explosions which were formerly so common among locomotive boilers having single-riveted lap joints. The experiments also suggested that the heating of structures which were severely stressed by other means than by nicking might create a brittleness which would ultimately lead to fracture. His experience amongst marine engines was that crank shafts were far more likely to crack if they had been carelessly allowed to get hot than if they were always kept cool while running. On the other hand, long exposure to cold had a less injurious effect on nicked samples than storing them at ordinary temperatures. His experiments, as far as they had already been prosecuted, had not revealed a test which would discriminate between reliable and treacherous qualities of steel, but they had nevertheless established the fact that mild steel does possess ageing properties, and that certain practices still fairly common amongst engineers were not free from dangerous possibilities.

The President remarked that Mr. Stromeyer had thrown a bomb of a most awkward character amongst them, and given them reason to doubt whether they would not in the end have to go back to the old-fashioned wood and stone, of which they still saw several examples standing in various parts of the world. They could not have imputations cast upon their honour without endeavouring further to elucidate the matter.

Mr. G. Ainsworth, Consett, contended that steel was not such a frightfully bad material as Mr. Stromeyer asserted, or they would have heard of it before.

Mr. A. Saxon, Manchester, speaking as an engineer, said the lesson of the paper to engineers was to purchase from the works and not from stock. He could scarcely credit



GROUND FLOOR PLAN

Three Cottages, Nos. 23, 24, and 25: Gold Medal in Class A.
(Mr. H. L. Paterson, Architect; Messrs. Thos. Roper & Sons, Builders.)

Yorkshire and North Midlands Model Cottage Exhibition: One of the Premiated Designs.

that a slight ageing could have had the effect which Mr. Stead wished to indicate.

Mr. Stead, Middlesbrough, regarded the results of the experiments as extraordinary. He had frequently examined broken boiler plates, and had traced the fractures to a distorted edge, but such fractures were not in boilers which were aged. Was it not possible that while ageing for six months might produce deterioration, ageing for a great period would restore all the good qualities of the plate? He had examined steel boiler plates which had been in service thirty years, and they had no indication of deterioration.

Mr. E. Adamson, Seaton Carew, remarked that steel plates had always behaved the same for fifty years. They had unaccountable fractures taking place, and when they wanted to find out the cause the makers said, "You have burnt it." It was the duty of makers to see why the plate failed, and not to shirk the issue.

Mr. Stromeyer, in reply, said he was not an alarmist, and did not wish to throw any doubts on the qualities of steel.

Mr. E. P. Martin, Abergavenny, said that Platts, of Oldham, made the first steel boilers, which were made of hard steel, and they were in use until a short time ago.

The President, in thanking Mr. Stromeyer, claimed that they had obtained a material upon which every reasonable reliance might be placed.

The meeting then discussed the four papers presented on the case-hardening of mild steel.

Mr. H. C. King, Swindon, said these matters of case-hardening were engaging their attention in the Great Western works, and with the most gratifying results.

Mr. H. Webb (Bury) mentioned that case-hardening of mild steel was practised to a large extent in Lancashire. Within twenty miles of Manchester they had ninety-five million spindles, and the great proportion of the machinery which actuated those spindles had been case-hardened. Mild steel if used by itself in the case of rollers would not last more than six months, whereas when they were case-hardened they lasted about nine years. "Our Lancashire people, so far as practice goes, are very expert in case-hardening. If you wish to investigate it I would respectfully suggest that Lancashire is the place to see case-hardening."

This closed the business proceedings of the meeting, and Sir Hugh Bell in fitting terms expressed the gratitude of the members of the Institute for the generous hospitality accorded to them in Vienna, and the thanks of the meeting were accorded by acclamation.

Mr. W. Kestranek, Chairman of the Reception Committee, and Dr. Herz, Secretary, briefly replied.

This afternoon the members visited the Imperial Palace at Schönbrunn. His Imperial and Royal Highness the Archduke Friedrich, on behalf of the Emperor, held a *levée*, at which the members had the honour of being received by His Imperial Highness, who is the head of the iron industry of the Austro-Hungarian Empire.

Messrs. C. O. Bannister (London) and W. C. Lambert, A.Inst.C.E., read a paper on "The Case-hardening of Mild Steel." With regard to the *modus operandi* of the process of cementation, the results recorded do not throw much light on the exact manner in which the carbon penetrates the metal, but the authors consider that the "solid solution theory"—that is, that the carbon passes into the iron as a solid solution—is capable of offering a satisfactory explanation without bringing in the question of the formation of subcarbides, etc. In this manner, it would appear that, in the case of the first four bars, those carburised at 871 deg. C., the carbon has penetrated the bars until they have become saturated—that is, until they contain 0·9 per cent. of carbon—and that very little has diffused as a more dilute solution than this, as shown by the very narrow ring of carburised metal within the saturated portion. On the other hand, the bars carburised at 982 deg. C. have been supersaturated on the outside, with the formation of free Fe_3C, and it would also appear that at this higher temperature the carbon is also capable of diffusing more easily as a dilute solution, as evidenced by the wider range of carburised metal within the saturated portion.

BAPTIST CHAPEL, TOOTING.—Messrs. John Wills & Son, of London and Derby, have been appointed as architects of a Baptist chapel, for 800 sittings, to be built near Tooting Junction station at an estimated cost of about 6,500*l*.

YORKSHIRE AND NORTH MIDLANDS MODEL COTTAGE EXHIBITION.

THE judges in this competition, which was reviewed at some length in our issue of August 10, gave their award last week.

The cottages are divided into three classes: (A) not to exceed 175*l*.; (B) not to exceed 200*l*.; (C) not to exceed 255*l*.

Six exhibits were excluded as not having complied with the conditions as to limit of cost. Of the remaining thirty-six cottages, nine were of Class A, twenty-one of Class B, and six of Class C. In Class A it was recommended that only the gold and bronze medals be awarded; in Class B that additional bronze medals be awarded to those placed third in merit and bracketed equal; and that in class C only the gold medal be awarded.

The following are the awards:—

Class A.—Gold medal—Nos. 23, 24, and 25 (Mr. H. L. Paterson, architect, Sheffield). Bronze medal—Nos. 5 and 6 (Messrs. Innocent & Son, Sheffield).

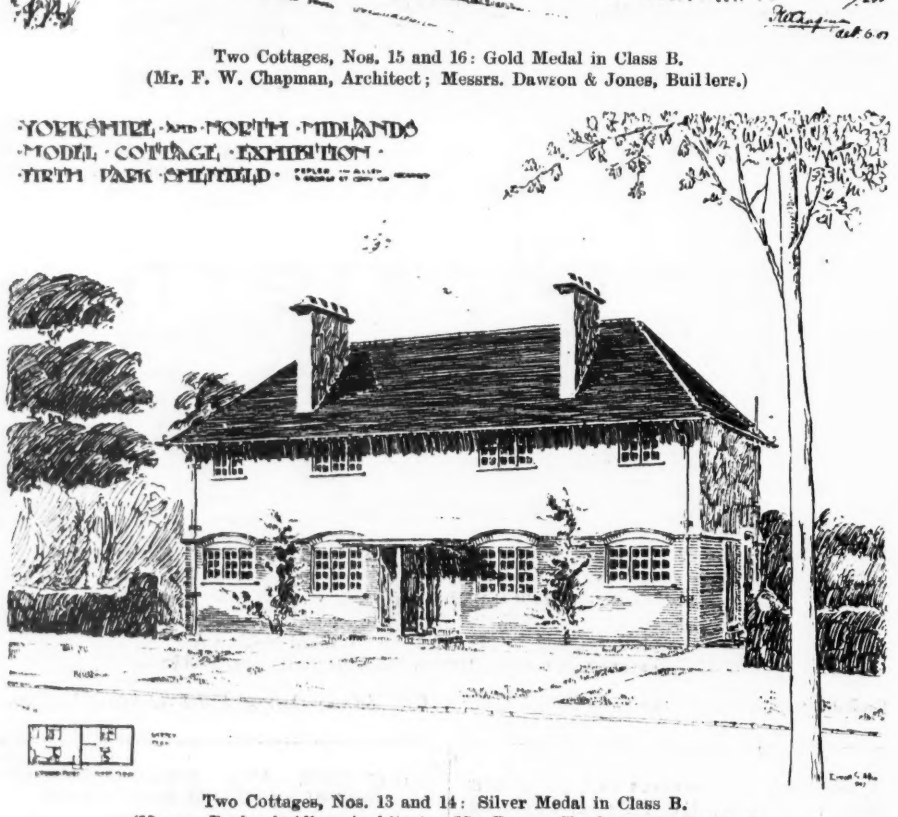
Class B.—Gold medal—Nos. 15 and 16 (Mr. F. W. Chapman, Sheffield). Silver Medal—Nos. 13 and 14 (Messrs. Pepler & Allen, Croydon). Bronze medals—Nos. 1, 2, 3, and 4 (Mr. H. L. Paterson, Sheffield); Nos. 17, 18, 19, and 20 (Mr. F. W. Chapman, Sheffield); Nos. 21 and 22 (Mr. J. Smith, Leeds).

Class C.—Gold Medal—Nos. 30 and 31 (Messrs. Benton & Roberts, Sheffield).

In the course of their Report the judges observe:—

"Those of us who have had the opportunities of seeing other exhibitions are of opinion that the cottages at High Wincobank are of a high standard as to convenience and construction, and particularly charming internally, and are remarkable productions for the limited cost; especially as this is inclusive of everything ready for occupation except wall papering or decoration; and that the statements as to cost are so reliable owing to the provision in the conditions that the competitor may be called upon to build twelve other cottages on the estate at the same prices. . . .

Two Cottages, Nos. 15 and 16: Gold Medal in Class B.
(Mr. F. W. Chapman, Architect; Messrs. Dawson & Jones, Builders.)



Two Cottages, Nos. 13 and 14: Silver Medal in Class B.
(Messrs. Pepler & Allen, Architects; Mr. Reeves Charlesworth, Builder.)

Yorkshire and North Midlands Model Cottage Exhibition: Two of the Premiated Designs.

There are, however, defects in some of the cottages to which attention should be drawn, viz.:—Outer doors into living-rooms without intervening porch or passage; too many doors into living-rooms, in some cases on opposite sides; fireplaces awkwardly placed in corners of living-rooms; windows with heads not near the ceiling, not opening at the top, and in some cases impossible to clean from the inside; sanitary arrangements not sufficiently screened from view; bedrooms in roofs exposed to excess of heat or cold. But these defects are the exceptions, and serve as contrasts to the others and to show the general high qualities of the whole."

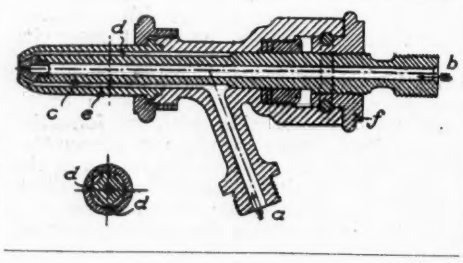
We give illustrations of three of the premiated designs.

ACTON MUNICIPAL BUILDINGS.—A meeting of the Acton District Council took place on the 17th inst. The ex-chairman, Mr. F. A. Baldwin, gave a lengthy reply to certain remarks made by the chairman in his absence from the last meeting. The matter referred to Mr. Baldwin's business relations with Mr. W. G. Hunt, the architect, who has served the council with a writ in respect of his unpaid charges for preparing plans for a scheme of municipal buildings at 35,000*l.*, which, in the opinion of the chairman, should have been disclosed to the council. A resolution, moved by Councillor Poulton, and seconded by Councillor Ince, that the competition be not proceeded with until settlement of Mr. Hunt's litigation, was not carried. The clerk stated that about seventy architects had made applications for conditions, and he had already received notice of withdrawal from a dozen of them.—*Tribune.*

Builders' and Contractors' Column.

CUTTING STEEL BY THE OXYGEN BLOW-PIPE.

AMONG the various industrial applications of oxygen, one of the most useful is its employment as a means of cutting steel tubes, plates, and structural sections. The *Société l'Oxhydrique Française*, who are specially interested in work of this kind, have recently devised a complete series of oxygen blow-pipes for different applications of the method in question. The annexed illustration contains sections showing the essential parts of a typical oxygen blow-pipe, where the branch *a* admits a mixture of oxygen and hydrogen gases and *b* is the inlet for oxygen delivered under pressure. The inner tube *c* is held in position by bosses *d* in the outer tube *e*, and the disc *f* permits regulation of the opening between the two cones at the left-hand end of the blow-pipe.



For making straight cuts in steel plate, an automatic machine is employed comprising a slide carrying the blow-pipe apparatus, motion being communicated to the slide by means of a worm. The blow-pipe itself is mounted upon a turret, permitting arcs of a circle to be traced by the end of the instrument. This type of apparatus is already in use by the French Government for cutting steel plates at the *Lorient Arsenal* and the *Forges de la Marine*, at La Chaussade.

Another form of appliance consists of an oxygen blow-pipe mounted upon a rail carrying an adjustable roller at each end, enabling cuts to be made normal to the surface or at any required angle, and the instrument is provided with a beam compass for cutting circles or hélices. This type of apparatus is used for cutting rails and T-bars by the *Compagnie du Chemin de Fer du Nord.*

For cutting pipes, another special machine has been devised, consisting of a circular band which can be fixed upon the pipe, and around which two blow-pipes, mounted on suitable carriers, can be revolved. By means of this appliance pipes up to 12 in. diameter may be readily cut in any position.

A universal portable machine is also made enabling any desired profile to be cut, the blow-pipe being guided by cams of appropriate form. This machine is used for cutting holes of any form in steel plate, whether flat, curved, or otherwise bent; for cutting blocks, such as billets of steel or any structural sections, and is in service at the *Lorient Arsenal*, as well as in various industrial establishments.

A drilling machine is also made, this tool comprising a blow-pipe fixed upon a spindle, the whole being portable, and enabling circular openings from 1¼ in. to 14 in. to be cut in steel plates of any thickness without the least effort. This tool has been used for cutting circular openings of 8 in. diameter through steel plates 1¼ in. thick, the time occupied being three minutes per hole.

A machine for cutting round bars includes a blow-pipe mounted on a carrier operated by a worm, and enables the cutting of plain bars up to 10 in. diameter in a remarkably clean manner.

The last appliance of the series is somewhat analagous to a boring machine, and is specially designed for cutting openings in steel-plate tubes of all diameters, and for chamfering the ends of steel-plate tubes ready for jointing.

The most prominent advantage of all oxygen cutting tools is the rapidity with which work can be performed. This point is made clear by the following data, which are quoted on the authority of Dr. Leon Guillet from an article in *Le Génie Civil.* A cut 1 metre long through a steel plate 1 in. thick can be performed in less than five minutes, an oval hole 12 in. by 16 in. in a steel plate 1¼ in. thick can be cut within the same space of time, the cost being less than 1s. 2d. in each case.

A striking example of cutting by means of the oxygen blow-pipe was furnished at the *Place d'Italie* station on the Paris Metropolitan Railway, when it became necessary to cut into two parts an iron staircase which was too wide, and impeded the circulation of passengers. The height of the staircase was 19 ft., and its width 11 ft. 6 in. By the use of an oxygen-cutting apparatus the staircase was divided longitudinally at the rate of 1 ft. in five minutes. The narrow staircase thus detached was carried away and erected in another place.

It is stated also that during some structural alterations in a French railway station one workman with the aid of the same apparatus was able to cut through within three hours 300 8-in. T-bars bedded in concrete. Other cases could be cited where work has been performed in a few minutes that would have taken from two to three days if done by hand tools, but the following comparison of cutting by an oxyhydrogen tool and a pneumatic chisel is even more conclusive. At Bremen during the demolition of some warships, a plate 12 in. thick was slotted by an oxyhydrogen tool to the depth of from 1½ in. to 2¼ in. for the length of 3 ft. 3 in. within

seven minutes, while the slotting of the same plate by a pneumatic tool to the depth of ⅜ in. by 4 ft. long occupied one hour.

The following table gives the consumption of gas per metre run of steel plate cut through. It should be noted, however, that hydrogen may be replaced by ordinary towns gas, thus reducing the cost of operation considerably. The width of the cut is 0·059 in. for plates up to 0·788 in. thick, 0·0985 in. up to 1·575 in., and 0·177 in. for all thicker plates:

Thickness of Plate.		Consumption in cub. ft. per foot of cut.		Time per foot of cut.
		Oxygen.	Hydrogen.	
mm.	in.			M. S.
5	0·197	1·45	1·45	0 50
10	0·394	1·99	1·99	1 8
15	0·590	2·47	2·47	1 24
20	0·795	3·01	3·01	1 42
30	1·18	3·98	3·54	1 17
40	1·57	4·52	3·70	1 21
50	1·96	5·92	3·98	1 27
75	2·94	9·35	4·95	1 47
100	3·94	15·60	7·41	2 41
130	5 12	23·10	10·20	3 17

In conclusion, it should be pointed out that investigations made by Dr. Guillet show that the operation of cutting steel in the manner described appears to exercise no prejudicial effect upon the material. It might reasonably be feared that a zone of metal would be overheated during the process, and that oxidation would take place to a certain depth. In order to arrive at a clear perception on these points, a mild steel plate 19·65 in. long by 9·82 in. wide by 0·59 in. thick was cut by the oxygen blow-pipe, and the metal was then examined micrographically and tested under impact. The examination of a strip cut from the plate showed that no decarburation had taken place upon the extreme edge, and that for a thickness of about 0·119 in. the structure of the metal gave slight indications of overheating, but elsewhere it was entirely of normal character. Impact tests made upon areas close to and at some little distance from the cut edges indicated no appreciable difference in resistance. Strips of metal showing abnormal structure under the microscope were cut off from the edge of the plate, and on being subjected to mechanical tests were found to possess practically the same resistance as other portions of the plate. From the foregoing results it may be concluded that the metal is not injured by the oxygen-cutting process.

The rapidity with which iron and steel can be cut, the small cost of operation, and the convenience of the method should render it extremely useful to all concerned in structural steelwork and in metal-working industries.

APPLICATIONS UNDER THE 1894 BUILDING ACT.

At the meeting of the Building Act Committee of the London County Council held on August 30 the proceedings were governed by the clause in the order of reference which empowers the Committee at certain seasons to act on behalf of the Council in relation to matters included in the Committee's order of reference.

Lines of Frontage.

Brixton.—Buildings on the site of Nos. 166 to 174 (even numbers only) inclusive, Acre-lane, Brixton (Messrs. F. J. Eedle & Myers for Mr. A. T. Janes).—Consent.

Greenwich.—Porches to five houses on the northern side of Charlton-road, Blackheath, eastward of Windcliff-road (Mr. H. E. Saywood).—Consent.

Hackney, Central.—Two dwelling houses on the west side of Queen's-road, Dalston, northward of No. 219 (Mr. D. P. Hayworth for Messrs. S. Hayworth & Sons).—Consent.

Hammersmith.—A motor shed on the northern side of Great Church-lane, Hammersmith, westward of No. 47 (Mr. G. Trotman for Messrs. Fullers, Ltd.).—Consent.

Hampstead.—Retention of a glazed roof over the stable yard at No. 82, Fitzjohn's-avenue, Hampstead, abutting on Prince Arthur-road (Messrs. Young & Hall for Mr. F. H. Pyman).—Consent.

Hampstead.—An illuminated iron and glass sign at Nos. 80-84, High-road, Kilburn (Messrs. Foster & Co., Ltd.).—Consent.

Hampstead.—An addition to the conservatory, No. 152, Finchley-road, Hampstead (Messrs. W. Duncan Tucker & Sons, Ltd., for Messrs. Morle & Co.).—Consent.

Holborn.—That the application of Messrs. J. Line & Sons, Ltd., for an extension of the periods within which the erection of four projecting signs in front of Nos. 213 to 215, Tottenham-court-road, Holborn, was required to be commenced and completed, be granted.

Kennington.—An illuminated sign over the entrance to Vauxhall railway station, Vauxhall-cross, Lambeth (Mr. J. W. Jacomb Hood for the London and South-Western Railway Company).—Consent.

Lewisham.—Houses with bay-windows, barge-boards, and porches on the eastern side of Girton-road, Lewisham (Messrs. Eastman Bros. for the Building Estates and Property Association, Ltd.).—Consent.

St. George, Hanover-square.—An illuminated sign over the shop cornice at the south-eastern angle of No. 229, Regent-street (Messrs. Stanley Jones & Co. for Café Verrey, Ltd.).—Consent.

St. George, Hanover-square.—A projecting balcony at the first-floor level on the Chesham-place frontage of No. 17, Chesham-place, St. George, Hanover-square (Messrs. G. Trollope & Sons and Colls & Sons, Ltd., for Mr. G. W. Henderson).—Consent.

St. Pancras, East.—An iron and glass canopy in front of the entrance to No. 250, Camden-road, St. Pancras (Messrs. Thorpe, Furniss, & Elkington for Mr. F. Bishop). Consent.

St. Pancras, South.—Retention of a projecting sign in front of the Osborne Hotel, Tavistock-place, St. Pancras (Mrs. M. J. Robertson).—Consent.

St. Pancras, West.—An open porch to No. 32, Euston-square, St. Pancras (Mr. Beresford Pite for the London, Edinburgh, and Glasgow Assurance Company, Ltd.).—Consent.

Strand.—An addition to the shelter at the main entrance of a new theatre abutting upon Wardour-street and Shaftesbury-avenue, Strand (Mr. W. G. R. Sprague for the Jacobus Marler Estates, Ltd.).—Consent.

Walworth.—A parochial hall on the south-eastern side of Surrey-square, Walworth (Messrs. J. E. K. and J. P. Cutts for the Rev. A. T. Ellis).—Consent.

Wandsworth.—Two projecting porches to a Baptist Sunday-school on the north-eastern side of Welham-road, Wandsworth (Messrs. Capell & Johnson for Messrs. Battley, Sons, & Holness). Consent.

Wandsworth.—Seven buildings on the north-eastern side of Garratt-lane, Wandsworth, and the erection of a one-story shop on the western bank of the westernmost building abutting upon Burntwood-lane, also the erection of porches to two cottages on the eastern side of Burntwood-lane (Mr. H. Bignold for Mr. C. Brawn).—Consent.

Wandsworth.—That the application of Messrs. A. W. Taylor & Co. for Mr. E. A. Duff, for an extension of the periods within which the erection of buildings on the southern side of Melrose-road, Southfields, to abut also upon the eastern side of Avenue-road, was required to be commenced and completed, be granted.—Consent.

Westminster.—A projecting one-story shop and porch in front of No. 123, Victoria-street, Westminster (Messrs. Z. King & Son for R. T. Raikes, H. Hiscox, and Louise Lean).—Consent.

Width of Way.

City of London.—Retention of a one-story building at the rear of No. 27, Middlesex-street, City, at less than the prescribed distance from the centre of Aldgate-avenue (Mr. J. Hamilton for Mr. L. Myers).—Consent.

Norwood.—A block of water-closets at Holy Trinity Schools, Tulse-hill, at less than the prescribed distance from the centre of Lutheran-place (Mr. A. H. Ryan-Tension for Vicar and Managers of the schools).—Consent.

Width of Way and Frontage.

City of London.—An oriel window in front of Nos. 67, 68, and 69, Watling-street, City (Messrs. Hesketh & Stokes).—Consent.

Strand.—Projecting iron and glass shelter in front of the Villa Restaurant, Nos. 37 and 38, Gerrard-street, Soho (Mr. H. M. Wakley for Mr. J. de Lara Cohen).—Consent.

Width of Way, Frontage, and Construction.

Haggerston.—The retention of gates and a wooden fence enclosing a timber wharf at No. 20, Regent's-row, Hackney (Messrs. Lovegrove & Papworth for Messrs. W. & C. Marshall).—Consent.

Hammersmith.—The retention of a building at the rear of No. 121, King-street, Hammersmith, abutting upon Down-place (Mr. J. W. Stonhold for Mr. J. House).—Consent.

Marylebone, West.—A covered way in front of No. 16, Elm Tree-road, St. Marylebone (Mr. W. H. Slatter for the Marylebone Cricket Club).—Consent.

Strand.—An addition to the existing shelter on the Great Windmill-street frontage of the London Pavilion, Piccadilly-circus (Messrs. Wylson & Long).—Consent.

Frontage and Construction.

Hammersmith.—A wood and canvas shelter in front of No. 1A, Shepherd's Bush-road, Hammersmith (Mr. E. W. Fagg for Mr. C. W. Godfrey).—Consent.

Fulham.—The retention of an open wood and iron shed at the rear of No. 59, Langthorne-street, Fulham, abutting on Woodlawn-road (Mr. J. Hedges).—Consent.

Hampstead.—The retention of a summer-house of a temporary character eastward of No. 16, Cleve-road, Hampstead (Mr. J. W. Stevens for Mr. W. Cronin).—Consent.

Frontage and Space at Rear.

Wandsworth.—Two houses on the eastern side of Balvernie-grove, Southfields, abutting on the northern side of Smeaton-road, Southfields, Wandsworth (Mr. R. Burr for Mr. W. Byford).—Consent.

Fulham.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the erection of Nos. 13 to 36, Colehill-gardens, Fulham, with an irregular open space at the rear, and the erection and retention of balconies at the second and third floors level of such buildings (Mr. A. Blackford).—Consent.

Space at Rear.

Chelsea.—A modification of the provisions of sect. 41 with regard to open spaces about buildings so far as relates to the erection of three houses on the western side of Basil-street, Knightsbridge, Chelsea (Messrs. Holland & Hannen).—Consent.

Hackney, North.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a two-story stable building in the yard attached to the Hermitage Laundry, Hermitage-road, Stoke Newington (Mr. P. Cornish for the Cyprus Laundry Company).—Consent.

Marylebone, East.—A modification of the provisions of sect. 41 so far as relates to the proposed erection of an addition at the rear of the Langham Hotel, Langham-place, St. Marylebone (Mr. J. Macvicar Anderson).—Consent.

Stepney.—That the application of Messrs. G. Baines & Son for an extension of the periods within which the construction of dwelling rooms in a public hall known as Brunswick Hall, Whitechapel-road, Stepney, was required to be commenced and completed, be granted.—Consent.

Wandsworth.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of two shops on the northern side of Garratt-lane, Wandsworth, westward of No. 711, (Mr. H. Bignold for Mr. C. Brawn).—Consent.

Deviation from Certified Plans.

St. George, Hanover-square.—Deviations from the plan certified by the District Surveyor, so far as relates to the proposed re-erection of No. 11, Mason's Arms-yard, Maddox-street, St. George, Hanover-square (Messrs. Browne & Folkard).—Consent.

Strand.—Deviations from the plan certified by the District Surveyor, so far as relates to the proposed re-erection of No. 13, Apple Tree-yard, York-street, St. James's (Mr. S. E. Adams for Mr. W. H. Adams).—Consent.

Formation of Streets.

Bow and Bromley and Hackney, South.—An extension of the time within which the roadway of a proposed street, to be named Waterden-street and to lead from Carpenter's-road to Homerton-road, Hackney-wick, was to have been defined and thrown open to the public as a highway (Messrs. Deakin & Cameron).—Consent.

Cubical Extent.

Marylebone, East.—The erection on the site of Nos. 308-320, Oxford-street, and Nos. 21-24, Old Cavendish-street, Marylebone, of a building with divisions to exceed in extent 250,000, but not 450,000, cubic ft., and to be used only for the purposes of the trade of a drapery establishment (Mr. J. Murray for Messrs. D. H. Evans & Co., Ltd.).—Consent.

Cubical Extent and Construction.

Greenwich.—(*a*) The retention of two buildings on a site on the western side of Anchor and Hope-lane, Charlton; (*b*) the erection of a building uniting the said two buildings; (*c*) the cubical extent of the buildings, as united, exceeding 250,000 cubic ft.; and (*d*) the retention of a steel chimney shaft (Mr. J. O. Cook for Messrs. Moore, Nettlefold & Co.).—Consent.

Alteration of Buildings.

Battersea.—A modification of the provisions of sect. 77 of the Act so far as relates to the retention of an opening in the party wall on the ground floor between Nos. 90 and 92, York-road, Battersea (Mr. H. Bignold for Dr. Curry).—Consent.

Kensington, South.—A modification of the provisions of sect. 77 of the Act, so far as relates to the uniting at the first floor level of Nos. 146 and 148, Brompton-road, Kensington (Messrs. G. and F. Kent for Madam Elsmere).—Consent.

Dwelling-houses on Low-lying Land.

Poplar.—That a licence be granted to Messrs. Griggs & Son, for the erection of eight dwelling-houses on low-lying land situated at East Ferry-road, Cubitt-town, Poplar.—Consent.

Illustrations.

THE GREAT HALL, UNIVERSITY COLLEGE SCHOOL.

THE University College School buildings at Hampstead pivot upon the great central hall. The whole of the classrooms open off this hall, so that the 600 boys for whom the school provides room are under complete and absolute supervision.

The interior treatment is entirely carried out in oak and modelled plaster work. The size is as nearly as possible a double cube of 50 ft.

On the occasion in July last when the King opened the new buildings, with a company of some 1,600 persons present, the acoustic properties of the hall are said to have been everything that could be wished; every syllable of the King's speech travelled over the whole room clearly and distinctly.

Messrs. Martyn, of Cheltenham, carried out the plaster work and the wood carving. Messrs. Dove Bros. were the general contractors, and Mr. Arnold Mitchell, who won the school in a competition is the architect.

The school opens in these new buildings on Monday next. So popular is the move to Hampstead from Gower street that nearly 150 new boys have entered for the coming term.

THE CAMBRIDGE UNIVERSITY LIBRARY.

THE measured drawing of the façade of the Cambridge University Library as it now exists, is a piece of vacation work by W. Naseby Adams, a student under Professor Reilly in the Architectural School at Liverpool University. It is an excellent drawing, illustrating a fine and dignified piece of Renaissance work.

We have thought it would be of some interest to give, along with this, a reproduction of the original elevation for the building, by the architect, Stephen Wright, whose signature is seen on the corner of the drawing, with the intimation, "Invt. et delint." Stephen Wright, in the middle of the XVIII. century, carried out Clumber for the Duke of Newcastle, and in 1753 or thereabout made this design for the Library and Senate House in conjunction, as shown on the small plan in the upper part of the plate. The Senate House, however, was not carried out from his design. The drawing is the property of Mr Charles Reilly, F.R.I.B.A., who has been kind enough to lend it to us for reproduction.

It is noticeable that the swags beneath the cornice, which form part of the decoration of the building as executed, were not inserted in the original elevation drawing, but have been roughly pencilled on afterwards; a slight trace of the pencilling will be seen in the lithograph.

The drawings illustrated here, we may add, will form a part of the contents of the Portfolio of measured drawings which is annually issued by the School of Architecture, and consists of measured drawings of selected buildings, by present students and old students of the school, together with descriptive and critical matter. In this case the old drawing by Wright will probably be included also, as having a special historical interest. The Annual Portfolio is published by Messrs. Crosby Lockwood & Son.

SCULPTURE: "GLORIFICATION DE L'ENTENTE CORDIALE."

THIS is photographed from a plaster model about 8 ft. long which was one of the exhibits at the Paris Salon this year. It represents, as will be judged by the scale of the figures, a proposed monument on a very large scale; and was probably exhibited in the hope that the suggestion would be taken up by the Government. It is not likely to be carried out, but it is a bold and spirited monumental conception; our only decided objection is to the very solid and material "rays" radiating from the pedestal of Peace; a kind of thing that can only be done in painting, and is rather a commonplace there. The central group, with the figures in the alcove representing France and England, is well conceived; and the subject at all events is one that may be of interest on both sides of the Channel. M. Ernest Damé is the sculptor.

SCULPTURE: "NOX MYSTICA."

THIS work was exhibited at the New Gallery, by invitation, and the sculptor was subsequently invited to exhibit it at the Liverpool exhibition at the Walker Art Gallery, where it now is.

The large wings which enclose the design are intended for the enclosing wings of Night, and the figure represents the calm and stillness of Night protecting the small winged figures in the folds of its drapery, which is woven of stars. The background is a design of poppy-heads and leaves; the wings of the large figure are those of a bat. "The whole design," writes the sculptor, Miss Esther Moore, "was an attempt to convey the feeling of calm peace one experiences on looking on a still summer night." It is a good example of sculpture used to suggest an abstract idea.

Books.

Cathedrals and Churches of Northern Italy. By T. FRANCIS BUMPUS. (London: T. Werner Laurie. 1907.)

THAT this is not a book for architects will be at once apparent from the fact that not a single plan of the buildings described is to be found in it. Plans add considerably to the labour and cost of a publication dealing with ancient architecture; they are often not easy to come at, and require to be specially and carefully drawn for publication; whereas mere pictorial representations can be readily obtained and reproduced from photographs; and these form the chief and the best portion of the illustrations, for the few coloured plates are not very good examples of colour-printing, nor do they seem to be taken from very good originals.

As a popular treatise on the architectural monuments of the country with which it deals, it is a book decidedly above the average of books written by amateurs for amateurs. The author is a man of general culture who knows how to write with eloquence and picturesqueness, and he is obviously a genuine enthusiast who really cares for his subject. The general reflections on the style and the special beauties of the buildings described show a fair critical judgment, which seems to have been based upon some study of the more learned class of works on architecture; and as a popular treatise it may be recommended to those who wish to go over the same ground in a spirit of intelligent enjoyment of what they see, without attempting to go seriously into the study of the buildings from an architectural point of view. An author who writes with evident enjoyment of a subject himself is likely to lead others to enjoy it.

The book is a large and handsome one, well printed on good paper, and the illustrations reproduced from photographs are numerous and (so far) satisfactory. The book is not entirely confined to the architectural monuments, but includes impressions in regard to other subjects; the landscape, the singing in the churches, etc. In regard to the remark that a student will find himself wofully deceived who goes to Italian churches in the expectation of hearing the strains of Allegri and Palestrina in the land of their birth, we cannot help saying that Allegri and Palestrina are not names to be bracketed together. The latter is one of the great names in music; the former certainly is not, and his celebrated "Miserere" is an illusion depending for its effect on place, manner of execution, and association. But we sympathise with the author's remarks on the combination of severe architecture with music of a similar spirit, and the note that in the cathedral of Trent "the organ was heard to advantage in a short piece, but of so solemn and church-like a character, that music and architecture seemed on this occasion at least to be thoroughly in accord."

We think the author entirely mistaken in what appears to be his suggestion (page 87) that plate tracery is essentially a better principle than bar tracery; he admits that it could only be carried out in the small-scale Italian windows; but in any case it is a mere illogical attempt at an effect incompletely realised and unstructural in character. This, however, is the one architectural opinion we have noticed in the book to which we should take any decided exception. The remark in comparing the architecture of Verona and Venice, that "the architecture of Verona is strictly architectural, that of Venice is to a great extent more picturesque than architectural," has a certain truth in it; though we can imagine the contrast being put in another way, to the effect that Verona shows the prose and Venice the poetry of architecture; which also is a partial truth. At all events, Venice has inspired more poetry than, perhaps, any other city.

Some Dorset Manor Houses. By SIDNEY HEATH and W. DE C. PRIDEAUX. (London: Bemrose & Sons. 1907.)

THIS is another book of illustrations of buildings without any plans; but in this case one can pardon the omission, as the object of the book is not exactly architectural study, but (as the sub-title gives it) "the literary and historical associations" of the houses, with picturesque illustrations of their external appearance As such, it is a beautiful volume; Mr. Heath's line drawings of the ancient houses, if a little too worked up and artificial from the artist's point of view, are carefully and finely executed, and result in giving the style of picturesque illustration which probably gives most satisfaction to the general readers to whom a work of this kind is mainly addressed. Mr. de Prideaux contributes the other element in the illustrations, the rubbings of brasses, which are effectively reproduced on a gold ground, and add not a little to the value of the book.

Mr. Heath gives, as an Introduction, a slight sketch of the development of the successive styles of house-building in England, which is useful for the reader who is new to the subject, and which one can accept in its general conclusions, though we think that, after the manner of those who search mainly for the picturesque, he underrates the architectural importance and the charm of the Renaissance houses. He refers in passing to the question, whether, after all, the charm of these country houses is not largely due to their age, and whether they would have impressed us in the same way when new. We gather that he would answer in the affirmative. Our impression that if one were to build a new house in exact imitation, as far as possible, of one of the Dorsetshire houses here sketched, the charm would not work; not only on account of the difference between new and weather-stained material, but of that between a house with a history and a house without one. A house which has been lived in for successive generations has an interest of association, almost indefinable, which blends with its architectural interest and gives it a value to the mind which the best-designed new building cannot have, though it will acquire it in time.

On the other hand, it is hardly to be expected that he who has bought an old house, "to live in, not to look at," as Bacon says, should be debarred from making additions which are necessary for his convenience, or that, as the author suggests, he should "consult local antiquaries" before doing so. What is it that the "local antiquaries" will teach him? Too often, perhaps, to make a sham-antique of his addition; a device which probably does not provide exactly what is wanted by the modern occupant, and yet totally fails to preserve the ancient spirit of the building. If additions must necessarily be made, it is better that they should appear frankly as modern additions than pretend to be what they are not.

Dorset is a stone county, and hence the houses illustrated are stone houses, mostly of the mullioned-window type; some of them, and some of the most picturesque, being comparatively small houses which, as in the case of Foxwell, have descended to the status of farm-houses. It is this type of house which Mr. Heath treats most successfully in his drawings; the one purely classic example, Charborough House, is not a very successful drawing, and confirms the impression given in the preface, that the author has very little sympathy with this style of house. Mapperton is shown in a good drawing, though, like others, a little too spotty and conventional in style of execution.

There is plenty of interesting literary and family history in connexion with the various houses, which to many will be as attractive as the illustrations.

Wall-paper Decoration: A Practical Guide to the Selection, Use, and Hanging of Wall-paper. By A. SEYMOUR JENNINGS. (London: The Trade Papers Publishing Company. 1907.)

WE do not know very well how any book is to be a practical guide to the selection of wall-papers, seeing that it is a matter chiefly depending upon innate or acquired artistic perception. The reason so many people choose bad wall-papers is that they do not know the difference between good and bad design; and even if they are told one is good and another bad they will take the bad by preference, and tell you "there is no disputing about tastes." The only really practical point we see is the advice not to depend on choosing papers out of pattern books, which often give so different an impression from the actual effect of a large expanse of the same paper. Two or three long pieces may be temporarily hung up side by side to judge of the effect. And when two or three are chosen as probably suited to the character and light of a particular room, large lengths of each should be sent to be tried in the room (this, we observe, the author suggests). It is almost impossible to know how a paper will really look in a room otherwise; conditions of lighting make such a difference in the effect. We agree in the recommendation not to overlook secondary bedrooms, as if any paper would do for them. There are some charming inexpensive papers now which are quite worth getting to give effect to a secondary or small bedroom. On the other hand, we do not agree with the recommendation of what are called "tile papers" for bathrooms. They are a sham, and a sham which becomes offensively obvious as soon as the paper gets in the least worn or stained. The toy friezes for nursery papers may be attractive to children; but one cannot feel sure of it. The tastes and fancies of children are difficult to enter into. Generally speaking, if they have plenty of real toys, we doubt if they pay much attention to the conventionally pictured ones.

The chapter on "Recent Developments in Designs" is short and inadequate, and throws little light on the subject, except in regard to the device of papering a wall in panels, which has a good deal in its favour, and one or two of the arrangements shown are effective.

Among the "Different Varieties of Wall-papers" we find reference to "the beautiful papers called 'flocks,'" with a remark that they are not now used to any great extent. The author does not seem to appreciate the reason. Flock papers are not sanitary; they hold a quantity of dust and germs. As a matter of appearance and taste they were much overrated; in a sanitary sense they are most unsuitable for town houses. What is called "silk fibre" paper has a certain amount of surface texture of a less objectionable kind than flock paper. Among the specimens tacked in at the end of the book the silk-fibre one marked "T 394" has a fine tone and texture, and ought to make a very agreeable un-figured wall-covering. When, however, a plain wall with no pattern on it is desired, paint is preferable to paper. The value of wall-paper consists in the opportunity of lightening the effect of a room by a decorative design, at small expense.

If the designs figured on the pages headed "Ceiling Decorations" are intended to represent papers for this purpose, they are nearly all wrong, as they are designs with a growth in one direction, and such are only fit for a vertical position on walls. A ceiling-paper must be emphatically an all-round diaper design, with no suggestion in its lines that one position is "right way up" rather than another. A ceiling has no right way up, and must be treated accordingly.

The chapters on "Hanging Papers on Walls" form the really practical portion of the book, and will be useful as first hints to those intending to enter the trade; and householders who are having papering done for them may be interested in knowing something about the methods of working and the principal defects to be guarded against. Those who procure it for this practical information will at the same time have an ornamental and well got-up book containing a good many pretty designs; also some which are not very good.

In turning over a book with many engravings of wall-papers one is struck by the tendency to vertical treatment which seems to prevail now; decidedly marked parallel vertical lines forming the basis of so many designs. This has a satisfactory architectural appearance as long as the lines are not too heavily marked and too insistent. Some designs practically make vertical lines without having been intended to do so, by an unfortunate emphasising of some point in the pattern; this is always annoying to the eye, and should be guarded against. There is a great deal more tolerance of naturalistic floral detail, even among good designers, than there used to be, and it may be used with pleasing effect sometimes, but it should be made subordinate to fixed architectural lines, as in Messrs. Jeffrey's "Rose and Smilax," Fig. 52, and the Ivy design, Fig. 60. "The Laburnum," Fig. 3, by Messrs. Jeffrey, is simply painting flowers on a part of the wall, it is hardly to be called design; no more is the "Appliqué Grape Frieze," Fig. 12 (an American paper), in which the careless naturalism of the grape-stalks looks all the worse by contrast with the rigid lines and conventional ornament of the panelling below. As to the "Tree Decoration," Fig. 61, that is again not decoration, but simply placing silhouettes of trees on a paper at equal distances; it reminds us very much of the landscape-paintings of a certain French painter whose work has been taken up as one of the recent fashions in art-criticism. The coloured friezes on the opposite page we hope do not represent the colours precisely; if they do, they are not very harmonious, and we should be sorry to live with them; we refer to the upper and lower ones. The middle one is a landscape frieze which is less objectionable but not altogether successful. A landscape frieze is a very difficult thing to deal with; it should never be naturalistic, it should suggest a reminiscence of Nature in a conventional way. The writer has known one very successful one, a frieze based on a seaside scenery of sea, low hills, and a recurring clump of trees, which he had in a room in his house for some time, and did not get tired of. But as soon as such a thing approaches realistic representation of Nature, it becomes irritating as a continuance. And the same applies to papers made up, like one or two illustrated in this book, of repetitions of the human figure in the guise of reality. There is one made up of repetitions of little two-figure groups by Kate Greenaway. One feels that these are too natural to be made patterns of. Very conventionalised ideal nude figures, or half-figures, intimately combined with the decorative design, are all that can be rightly allowed. As soon as the figure approaches to real life it acquires a pictorial quality which is out of place on a wall-paper.

BOOKS RECEIVED.

WATERWORKS DISTRIBUTION. By J. A. McPherson, M.Inst.C.E. Second edition, revised and enlarged. (B. T. Batsford. 6s.)

THE TEMPLE CHURCH. By George Worley. (Geo. Bell & Sons.)

TABULAR AIDS TO VALUATION. By G. T. McCaw and F. Oliver Lyons. (Crosby Lockwood & Son.)

PROCEEDINGS OF THE FORTIETH ANNUAL CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS. (Gibson Bros., Washington, U.S.A.)

THE SANTUARIO OF THE MADONNA DI VICO. By L. Melano Rossi. (Macmillan & Co. 21s.)

Trade Catalogues.

THE Armoured Tubular Flooring Company send us a circular describing and illustrating a system of reinforced concrete floor construction suitable for erection without centring in spans up to 30 ft. The idea is certainly ingenious, as may be realised from the following brief description:—The structure is composed of three elements—rebated webs of concrete reinforced against tension by steel bars of corrugated cross-section; tubes of cinder mortar in lengths of 8 in., rebated suitably for application between the webs; and a top layer of concrete, finishing the floor and offering resistance to compression. Floors of this type are built by laying the webs on their supports at distances of 8 in. apart, dropping the tubes into their places, and then the top layer of concrete is deposited by workmen using the construction as a staging. An armoured tubular floor loaded up to 280 lb. per sq. ft. was tested in January last by the British Fire Prevention Committee with satisfactory results, neither fire nor water passing through the construction. We take this opportunity of pointing out that pages 5 and 6 of the circular require transposition, being obviously printed in the wrong order.

Competitions.

NURSES' HOME AND COTTAGE HOSPITAL, SUTTON COLDFIELD.—Twelve sets of designs were received for the above building. The assessor appointed was Mr John P. Osborne, F.R.I.B.A., of Birmingham, who selected the design marked "No. 2," which was found to be by Messrs. Buckland & Heywood-Farmer, of Birmingham.

SHEFFIELD HOUSING EXHIBITION.—The nine judges appointed to report upon the Model Cottage Exhibition at Sheffield have made their awards as follows:—Class A, cottages costing not more than 175*l.*—Mr. H. L. Paterson, A.R.I.B.A., Sheffield, gold medal; Messrs. C. J. Innocent & Son, Sheffield, bronze medal. Class B, maximum price 200*l.*—Mr. F. W. Chapman, Sheffield, gold medal; Messrs. Pepler & Allen, Croydon, silver medal; Messrs. H. L. Paterson, F. W. Chapman, and J. Smith, Leeds, bronze medals. Class C, maximum price 225*l.*—Messrs. Benton & Roberts, gold medal. The judges reported that the cottages are all of a high standard as to convenience and construction, and are remarkable productions for the limited cost, especially as this is inclusive of everything ready for occupation, except wall-papering and decoration.

Correspondence.

FOUNTAINS ABBEY.

SIR,—It may interest your readers to know that I have been instructed by the Office of Woods and Forests to make a complete survey of Tintern Abbey, to do which excavations will be made (under my direction) on the site of the infirmary and buildings of the outer court. The sites of the gatehouses appear to be covered by roadways, so unfortunately will not be able to be unearthed, but as much will be done as possible to make the plan as complete as those I have already published of Fountains, Waverley, and Beaulieu. HAROLD BRAKSPEAR.

THE PETIT TRIANON.

SIR,—Messrs. Arnott & Wilson, the authors of the book on the Petit Trianon, Versailles, Part I. of which was reviewed in your last week's number, ask me to mention that the cover of the portfolio states that a historical account and descriptive letterpress is to be given; and this will appear in the third and concluding part. B. T. BATSFORD.

*** But there was a whole page of Introductory matter to the first part, in which there was surely room to give the architect's name, instead of merely referring to the building in general terms as "a typical example," etc., as if no distinguished architect's name were connected with it.—ED.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held at the Guildhall on Thursday last week, the Lord Mayor presiding.

Leadenhall-street.—Mr. Deputy Pearse Morrison drew attention to certain statements which had been made in the Press respecting the condition of this street. Mr. Walter Dennis, the chairman of the Improvements and Finance Committee, stated in reply that the committee were considering a proposal to increase the width of the eastern end of this thoroughfare to 36 ft. They had instructed the Engineer to prepare an estimate of the probable cost so that an application might be made to the London County Council for a contribution, the improvement being of a metropolitan character.

Repaving of the Approaches to the Tower Bridge.—The Bridge-House Estates Committee were authorised to relay the granite paving on the northern and southern approaches to the Tower Bridge at a cost not to exceed 2,000*l.*, and advertise for tenders.

Central Meat Market.—The same committee recommended the acceptance of the tender of Messrs. G. Munday & Sons, at 146*l.*, for works

to disused lift spaces in the London Central Meat Market, which was agreed to.

Repairs at the Guildhall.—In the report of the City Lands Committee it was stated that during the recess certain necessary work of repair and maintenance in the offices at Guildhall has been done at a cost of about 538*l.* 13s.

New District Surveyors.—A letter was read from the London County Council to the effect that the new District Surveyors in the City under the London Building Act of 1894 were: Mr. J. Todd, Hamilton House, 149, Bishopsgate-street Within (eastern district); and Mr. C. W. Surrey, 134, Fleet-street (western district).

The Student's Column.

MODERN METHODS OF USING GAS.—XII.

Heating Greenhouses and Motor-car Sheds.

HEATING GREENHOUSES.—Hot-water pipes are usually employed for heating greenhouses, and gas is now commonly employed for heating the boiler. The boiler should be located outside the greenhouse in such position that the products of gas combustion cannot enter the greenhouse. Gas is an expensive fuel for heating large greenhouses, but where the cost of the fuel is not a matter of primary consideration the ease with which the house can be maintained at any desired temperature by merely manipulating the gas tap often causes gas to be used as a substitute for solid fuel. For heating small greenhouses gas has no rival in towns in which this fuel is supplied at less than 4s. per 1,000 cubic ft.

The late Mr. Fletcher found that a consumption of 1 cubic ft. of coal gas per hour will maintain a rise of 1 deg. Fahr. for every 450 sq. ft. of glass in a calm wind, and that in windy weather at least double this quantity of gas is required. He considered that it is unnecessary to maintain any plant-house at a higher minimum temperature than 45 deg. Fahr., and showed that if an attempt were made to prevent the temperature falling below a minimum of 55 deg. Fahr. the cost of the gas used per annum would be enormously greater.

Heating Motor-car Sheds.—To prevent injury to motor-cars through the freezing of the water they contain it is usual to heat the shed which shelters them during the winter months. As it is only necessary to maintain a minimum temperature a few degrees above freezing point a very small quantity of gas will, in most cases, suffice to accomplish this work.

A "Tubal" Heater.—One of the cheapest and simplest forms of heater for sheds and small greenhouses is that known as the "Tubal" heater, manufactured by the Richmond Gas Stove and Meter Company. The tubal heater is shown in section in Fig. 23. It consists of a water tube having a flue running centrally through it. The hot products of combustion flow along the flue, and may be led away to a flue outside the house. In their passage the combustion products part with most of their heat to the water. Around the outside of the horizontal flue is a spiral which assists in conveying heat from the flue to the water. A small tank is fitted upon the water tube, and the tube is filled by pouring water into this tank. The water flows into the tube through a hole in the bottom of the tank. When the tube has been filled the tank is left empty, so that when the water in the tube is heated and expands the tank will hold the additional volume of water produced by expansion. A small quantity of water is occasionally added to replace that lost by evaporation. Where the pressure of the gas supply is variable a gas governor should be used. It is claimed that a gas consumption of 6 cubic ft. of gas per hour will maintain the temperature of the water in a 12-ft. length of 4-in. pipe at 200 deg. Fahr.

The water tube is manufactured in sections which can be connected and led round the walls of the house.

Hot-water Pipes.—For larger greenhouses ordinary hot-water pipes are usually employed, the water being heated in a multitubular boiler by a gas flame. An apparatus for supplying greenhouse pipes with circulating hot water is shown in Fig. 24. Most

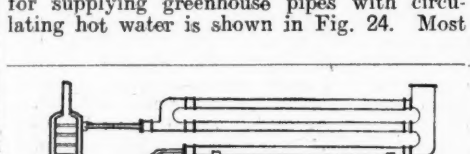


Fig. 24. Multitubular Boiler for Hot-water Pipes.

of the makers of gas stoves supply boilers of this type for greenhouse heating. The boilers should be housed just outside the greenhouse. Hot-water pipes of 2 in. internal diameter are preferable to pipes of 4 in. diameter, because they become hot much more rapidly. A gas consumption of 5 cubic ft. per hour should maintain the water in 20 ft. of 2-in. pipe at a temperature 70 deg. Fahr. higher than the temperature of the greenhouse.

When selecting a boiler for use with hard water it should be remembered that periodical removal of scale from its interior will be necessary. The boiler should be so constructed that removal of the scale may readily be effected.

Hot-air Stoves.—Sometimes a condensing stove without a flue is used in a greenhouse, but there is always risk of the plants being injured by the sulphur compounds in the escaping products of combustion. In another form of hot-air stove the products of gas combustion are confined in an iron flue which runs for some distance into the house, and then passes into the outer air, where it discharges the products of combustion which remain uncondensed. This prevents the products of combustion from injuring the plants, but the heat is not so well distributed through the house as when hot-water pipes are used.

Obituary.

PROFESSOR VERNON-HARCOURT.—Mr. Leveson Francis Vernon-Harcourt, M.Inst.C.E., of Haddon House, Weybridge, who died, aged sixty-eight years, on September 14 at Swanage, was appointed Professor of Civil Engineering, University College, London, in 1882, and became Emeritus Professor in the course of last year. Having proceeded from Harrow to Balliol College, Oxford, he took high honours in both natural science and mathematics, and then became a pupil of Sir John Hawkshaw. He was the author of "Rivers and Canals," and other well-known works upon docks, harbours, water-supply, and constructive civil engineering, as well as of many scientifical papers and articles. Professor Vernon-Harcourt established himself in London about thirty years ago as a consulting engineer, and quickly rose to a distinguished eminence in his profession. Amongst the public positions which he held from time to time we may mention his appointments by our Government as a delegate to the Milan Navigation Congress, and as a member of the Suez Canal Works Consultative Commission, in 1905-6. He presided over the Mechanical Science Section at the meeting of the British Association in Ipswich in 1895, and in the following year he reported upon improvements of the navigation of the river Hooghly. He was a member of the juries for civil engineering at the Paris (1900) and St. Louis (1904) Exhibitions, and of the International Jury who met three years ago at Vienna in the matter of lifts for canals.

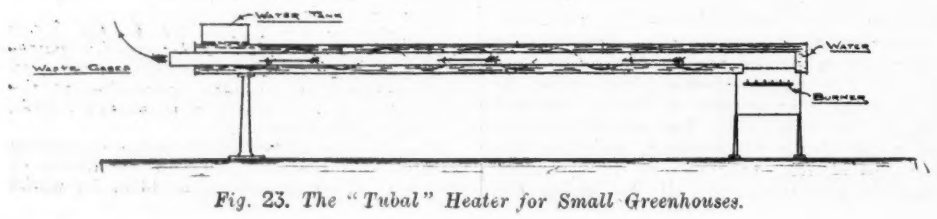


Fig. 23. The "Tubal" Heater for Small Greenhouses.

General Building News.

GREENSIDE PARISH CHURCH, COUNTY DURHAM.—This church, which celebrates its jubilee this week, has just been enlarged and renovated at a cost of about 1,500*l.* The chancel has been lengthened by an addition of 10 ft. and paved with marble. A new north aisle has been added giving seating accommodation for over 100 persons. The chancel has received a new oak chancel screen, reredos, and organ screen. A large choir vestry has been provided. The contractors for the work were:—Structural and general, Messrs. Middlemiss Bros.; heating, the R. J. Ward Company; painting, Mr. John G. Cole; stone carving, Mr. Robert Beall; lead glazing, Mr. J. G. Baguley, all of Newcastle-on-Tyne; plumbing and gasfitting, Mr. E. Joicey, Ryton-on-Tyne. The marble pavement, oak screens, and reredos were executed by Messrs. R. L. Boulton & Sons, of Cheltenham. The work has been carried out from the plans and under the supervision of Mr. Fred E. Dotchin, architect, Newcastle-on-Tyne.

ROMAN CATHOLIC CHURCH, SEAHAM HARBOUR.—A new Roman Catholic church has been built at Seaham Harbour, Sunderland. The building will provide seating accommodation for about 500, and is 102 ft. long over all and 52 ft. wide. It has been entirely built of moulded concrete blocks, and to the plans prepared by Father Hayes. The church has a central aisle or nave and two side aisles, the nave arcading being formed with six semi-circular arches, carried on circular columns, with square moulded bases and carved caps. Twelve pairs of windows light up the clerestory. The sacristy accommodation consists of priests' sacristy, 18 ft. by 14 ft., and boys' sacristy, 14 ft. by 14 ft., both opening into a corridor which will connect with the presbytery. The heating of the building will be by the low-pressure radiator system. Mr. Thomas Axtell, of Ryhope, is the architect of the new church, which, with the sacristies, has cost about 3,000*l.*, but the total expenditure involved, including site and presbytery, has been over 6,000*l.*

NEW CHURCH, TIMOLEAGUE.—A new parish church is being erected in Timoleague, to replace the existing antiquated building. The designing of the new church was entrusted to Mr. M. A. Hennessy, Cork, and the contractor for the work is Mr. Murphy, of Bandon.

WESLEYAN CHURCH, BOWES PARK.—The new Wesleyan Church at Bowes Park is now nearing completion and will shortly be opened. The church, which has been built from the plans of Messrs. Bell, Withers, & Meredith, occupies a corner site at the junction of Palmerston-road and Bowes-road. It is a towered building of red brick and stone, and the total cost of erection and equipment will be about 10,000*l.*

NEW SCHOOL BUILDING, GLAMORGAN.—The new mixed department which has been erected at the Sandfields Council School, Aberavon, Port Talbot, was opened on Monday, September 23. The new department provides for 150 scholars. The accommodation consists of three classrooms, central hall, teachers' room, storeroom, and cloakroom; also an additional classroom has been added to the infants' department. The new building has been designed to harmonise externally with the old one, and is faced with red and buff Ruabon bricks and Bathstone dressings. The roofs are covered with Welsh slates. Internally, all walls are lined to a height of 4 ft. with glazed bricks; the classrooms with salt glazed bricks, and the cloakrooms with white glazed bricks. A space for free-arm drawing is provided in the dado in the central hall. The woodwork is stained and varnished throughout, except the window frames and sashes, which are painted white. The floors generally are laid with pitch pine blocks, except to the cloakrooms, which are laid with tiles. Ventilation is provided by means of air inlet panels and exhaust roof ventilators; in addition, hoppers are provided in the lower squares of the windows, and the upper portions of windows are made to swing. The heating is by means of Shorland's warm air ventilating grates. The total cost of the building will amount to about 2,900*l.* The contractors were Messrs. Price Bros., of Cardiff. Mr. George Richards acted as clerk of works. The architect was Mr. W. James Nash, the County Education Architect.

TENDERS FOR WORK AT ANTWERP DOCKS.—The Commercial Intelligence Branch of the Board of Trade have received from the Acting British Consul-General at Antwerp a copy of a specification issued by the municipal authorities of that city relating to a call for tenders for the construction of a building for motors, batteries, etc., in connection with the cranes and other electric apparatus at the new docks at Antwerp. The estimated cost of the work is 67,900 francs (about 2,716*l.*). Tenders (in sealed registered envelopes) should be delivered to Monsieur le Bourgmestre de la Ville, Hôtel de Ville, Antwerp, by October 7. A deposit of 4,000 francs (about 160*l.*) will be required to qualify any tender. The specification may be obtained from the Hôtel de Ville on payment of one franc. A copy may be inspected by British contractors

at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C.

FRANCO-BRITISH EXHIBITION, SHEPHERD'S BUSH.—Good progress is being made with the buildings for the exhibition to be opened next May. Mr. E. White's general scheme embodies an Imperial tower, a court of honour and a court of arts, with a canal, lakes, and gardens, in the midst of which are pavilions and other buildings for manufactures, the fine arts, and industrial and agricultural exhibits, and the engineering and shipping sections. The stadium for the Olympic games, which is being constructed of steel by Messrs. Alexander Findlay & Co., of Motherwell, will have a computed capacity for 80,000 spectators, and the arena will contain a running track of three miles in circuit, an inner cycle track, and a swimming pond, 330 ft. by 50 ft. In the élite gardens, laid out with terraces, are the royal pavilion, restaurants, garden club-house, and a band-stand in a hollow of the enclosure. The grounds, on the Wood-lane and Uxbridge-road area, extend over an aggregate of nearly 140 acres, and new stations will be built in connexion with the railways in the immediate vicinity.

NEW MUSIC-HALL, WILLESDEN.—A music-hall, having a capacity for an audience of some 3,500 persons, has just been opened in High-street, Willesden. The plans and designs, by Messrs. F. Matcham & Co., embrace a sliding roof, separate entrances and exits for every part of the house, with a direct access beneath the pit to the stalls, and waiting-rooms for the audiences.

FLOUR MILLS, FELIXSTOWE.—A large mill has been built at Felixstowe Dock, Suffolk, for Messrs. E. Marriage & Son, after plans and designs by Messrs. Brown & Burgess, of Ipswich. The machinery provides for dealing with cargoes of grain brought by steamships of 2,000 tons burden to the wharf of a tidal dock. The elevator, cleaning, and milling plants, constructed by Messrs. Henry Simon, of Manchester, are distributed in four buildings. Messrs. Christy Brothers & Co., of Chelmsford, supplied the machinery for the electrical power and lighting, which comprises motors in the elevator tower and receiving house, and two belt-driven dynamos with one direct-coupled steam-driven set for the lighting and power by current.

SEAMEN'S INSTITUTE, ROCHESTER.—The foundation stone of the Medway Merchant Seamen's Institute at Rochester was laid on the 16th inst. by the Right Hon. Lord Brassey. The estimated cost of the new building is 4,000*l.* The architect is Mr. W. T. Boucher (Drake & Boucher, Rochester), and the builder Alderman C. E. Skinner, of Chatham.

PUBLIC FREE LIBRARY, HAMILTON.—On the 17th inst. the new free library in Hamilton was opened by the donor, Mr. Andrew Carnegie, LL.D. The building occupies a site on the west side of Cadzow Bridge. The various departments include a lending library, having provision for 14,000 volumes, a general reading-room, 54 ft. by 47 ft., a reference library with accommodation for 20,000 volumes, a lecture hall seated for about 300 persons, and a ladies' room. The building, which with furnishings, etc., will cost about 15,000*l.*, was built from plans by Mr. Alex. Cullen, architect.

HOSPITAL ADDITION, LONGTON.—A new operating theatre has been erected at the Longton Cottage Hospital, from plans prepared by Mr. Jos. G. Oatley, of Whitehall. The floor of the theatre is of mosaic. The room is ventilated by an electric fan, and the inlet air is filtered through a frame of gauze and cotton wool, afterwards being heated by passing over a radiator. The lavatory fittings are from Messrs. Twyford's, Ltd., Cliffe Vale, and Messrs. Salter & Co., London; the hot and cold water service was installed by Messrs. Trussell & Co., Newcastle. The tender for the structural work, including a Rontgen-ray room, amounted to 969*l.* 15s.

Stained Glass & Decoration.

LLANRHOS CHURCH, LLANDUDNO.—A two-light window, representing the Resurrection, has been dedicated to the memory of the late Mr. W. Moore Campbell, of Close House, St. Helens. The glass was executed by Messrs. Mayer & Co.

CONGREGATIONAL CHURCH, HIGHGATE.—A window, having for its subject the Blessing of Children, has been set in the church as a memorial to the late Mr. George Whight, inventor, who began life as a builder. The window was executed by Messrs. Shrigley & Hunt from Mr. H. Ibberson's designs.

PARISH CHURCH, LITTLE BARDFIELD.—Mr. R. Creed, of Little Bardfield Hall, architect, has designed and presented to St. Catherine's Church, an ancient structure, a set of twenty-one carved bosses for the groining of the sanctuary roof. The carvings, coloured and gilded, are emblems of the Passion, with figures of angels, the general design being symbolical of the Church and the company of Heaven offering thanksgiving and praise in unison.

HOLY TRINITY CHURCH, EXMOUTH.—Messrs. Percy Bacon & Brothers have just executed a series of windows at Holy Trinity Church, under the supervision of Mr. G. H. Fellowes Prynne. The east window consisting of three lights and tracery, represents our Lord in Majesty surrounded by saints and angels. The chapel apse has five two-light windows, four of which are just inserted and depict the "Nativity," "Epiphany," and "Adoration of the Shepherds." In the chapel nave are two large windows of two-lights each, in which are various saints with panels beneath illustrating incidents from their lives. There are also two large windows containing two lights each in the nave south aisle treated in the same manner. Altogether nineteen lights are complete, and four more in course of execution.

Sanitary and Engineering News.

NIDD VALLEY LIGHT RAILWAY.—The opening of the light railway laid down by the Bradford Corporation from Pateley Bridge to Lofthouse took place a short time ago. The railway has been constructed primarily for the conveyance of materials for the new reservoir which the Corporation are erecting at Angram, but passengers will also be carried. There are four stations on the route—Pateley Bridge, Wath, Ramsgill, and Lofthouse. They are almost identical in construction, each having a booking-office, waiting-rooms, store-rooms, and station-master's house. Mr. James Watson, C.E., the Waterworks Engineer to the Bradford Corporation, is engineer of the new railway.

LARDERS IN HOUSES.—At the meeting of Leyton Urban District Council on Tuesday the Medical Officer (Dr. J. Francis Taylor) presented his report, which contained the following paragraph:

"In my inspections of the district I have been struck by the almost entire absence of proper accommodation for the storage of food in houses. I might even go so far as to say that a properly constructed and adequately ventilated larder does not exist. A small cupboard in a scullery, or adjacent to a water-closet, is considered good enough to put food into. I would suggest that a clause be inserted into the building bylaws, making a proper larder a *sine quâ non*. Especially is this necessary in the case of bakehouses, eating-houses, and the like, where food is prepared for public consumption."

The report was adopted.

Foreign.

FRANCE.—The Eiffel Tower, so far from being removed, is being rejuvenated by painting. It is to be finished white from the third platform to the summit, and below that of a reddish brown picked out with yellow. The work will take about three months, and will cost about 75,000 francs. ——The Museum of the Union Centrale des Arts Decoratifs has acquired, at a cost of 80,000 francs, a fine collection of textiles, silk and velvet, of the Middle Ages and the Renaissance. ——At the Hôtel des Chambres Syndicates, 3, Rue de Lutèce, is an exhibition of the designs submitted in the sixteenth competition of the Société Nationale des Architectes de France. The subject is—"A casino for a small watering-place."——The Municipality of Orleans have voted over half a million francs for various architectural works, including the erection of a group of schools at St. Marceau.——The Municipal Council of Besançon have voted 930,000 francs for various architectural works and street improvements.——The Municipality of Embrun have decided on the erection of a monument to the memory of the deputy-poet Clovis Hugues.——The sculptural group by M. Landowski, entitled "Les Fils de Caïn," exhibited in the Salon of 1906, has been placed in the Square Gambetta, at the Louvre. Three other groups, to be placed in the same square, are in course of execution; "La Peinture," by M. Octobre; "La Sculpture," by M. Fagel; and "L'Architecture," by M. Landowski.—— The "Ministère du Travail" is shortly to be installed in the fine Hôtel in the Rue de Grenelle, formerly occupied by the Archbishop of Paris. ——The Salon d'Automne, which will open on October 1, will include three rooms devoted to a historical exhibition of Belgian art, illustrating especially the development of Belgian painting during the last half-century. It will contain also a special exhibition of the works of Carpeaux; a collection of drawings by M. Rodin; and a collection of paintings by Berthe Morizot, the favourite pupil of Manet.——The town of Dieppe will shortly inaugurate a monument in honour of M. Saint-Saëns, who was a native of Dieppe. M. Marqueste is the sculptor.—— The building called the Tower of Jeanne Darc, at Eu, has been transformed into a museum and library.——The large decorative paintings by M. Henri Martin, which were exhibited at the last two salons, are shortly to be put in place in the Capitol at Toulouse.——The Municipality of Lyons have voted a sum of five million francs for various school buildings.——The Municipality of Bethune have decided on the construction of a college for girls, at an estimated cost of 300,000 francs.——The third competition for Habitations à Bon Marché, opened by the Municipality of Paris, will commence on January 30 next year.——The death is announced, at the age of seventy-five, of the eminent architect, W. Bouwens van der Boyen. He was born at the Hague, but became naturalised as a Frenchman. He was architect for the immense Hôtel of the Crédit Lyonnais, and retained a position in connexion with it as Honorary Architect. He built also the mansion, No. 7 in the Avenue Velasquez, formerly inhabited by Cernuschi, and which is now the Cernuschi Museum. M. van der Boyen received the decoration of the Legion of Honour in 1878, and was a member of the Conseil Général des Bâtiments Civils.——The death is also announced, at the age of sixty-six, of M. Triboulet, architecte-expert, and member of the Société Nationale des Architectes de France.——We have also to record the death, at the age of sixty-seven, of the landscape-painter Louis Watelin, a pupil of Van Marck and of Diaz. He exhibited for the first time in the Salon of 1870, and since then has exhibited every year landscapes from the forest of Fontainebleau and its district. He obtained medals in two salons, and a bronze medal in the Exhibition of 1889. His landscapes, both in choice of subject and in treatment, recall those of Diaz, but are not without a special character of their own.

JERUSALEM.—From a statement in *Bible Lands*, the quarterly paper of the "Jerusalem and East Mission," we learn that St. George's Church at Jerusalem, of which Mr. Jeffery, of Nicosia (Cyprus), is the architect, is making favourable progress. The masonry is nearly three quarters finished, and, but for the delay in getting marble from Italy, it would have been much nearer the point when it can be roofed. It is hoped, however, that the roof may be on before the rains. The committee have about 2,600*l.* of the 5,000*l.* required for its full completion. A timely but anonymous gift has been made of 500*l.* for the tower. The internal fittings of the chancel will be carried forward as funds come in. The floor and the choir fittings and stalls will follow; and the transference of the organ to its new and more spacious organ chamber will be included. This may cost 300*l.*, if the wish of the organist for the addition of two new stops can be met. The fittings of the chancel will cost about 500*l.*, and the flooring of the new building about 200*l.* The whole structure of St. George's, old and new, has been laid upon the solid rock. This has not been an easy condition of work, nor easily estimated, for in some places the rock is near the surface; and then, almost at once, it will go down perhaps 16 ft. Still, Mr. Jeffery's calculations have been very closely verified, and the total has not been exceeded.

ITALY.—Some apprehension is felt in Rome at the proposal of the owner of the grounds of the Villa Aldobrandini to build over that part of the land which abuts upon Via Nazionale. The luxuriant growth of plants and flowers seen above the parapet of the wall, and the groups of pine and cypress trees combine to form one of the most beautiful natural objects of the city.

NEW ZEALAND.—Messrs. J. Maclean & Sons have been appointed contractors, upon a tender of 599,794*l.*, for the construction of the Arthur's Pass tunnel, to be 17 ft. high by 15 ft. wide, for a length of 5¼ miles. The estimated total cost of the undertaking amounts to 750,000*l.*

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Wm. Flockhart, architect, has removed his offices from 180, New Bond-street to No. 10, Conduit-street, W.——Mr. B. W. Adkin, F.S.I., has removed his offices from 14, Queen-street, Cheapside, E.C., to 82, Victoria-street, Westminster, S.W.——The Kleine Patent Fire-resisting Flooring Syndicate, Ltd., have removed their offices from 9, St. Helen's-place to Museum Station-buildings, 133 to 136, High Holborn, W.C.

INSTRUCTION IN ENAMEL WORK AND JEWELLERY, ETC.—Mr. Alexander Fisher, whose decorative work in silver, enamelling, and jewellery is so well known, is about to open day classes for instruction in these arts, commencing on the first Monday in November at the "Fisher School of Enamelling, Metal Work, and Jewellery," Kensington. Full particulars may be obtained from the Secretary, at 17, Warwick-gardens, Kensington.

FIRE TESTS WITH HYDRANTS.—A report issued last week by the British Fire Prevention Committee describes the testing of hydrants fitted with an automatic device for opening the valve by merely jerking the hose. For the purpose of comparison the hydrants were also tested without using the adaptors. As described in the report, the adaptor is a device whereby any

fire hydrant or valve may be made automatic in action, enabling an operator, by simply grasping the branch pipe of the hose fitted to the attachment, and running with it to the scene of a fire, to obtain a supply of water without the necessity for unscrewing the valve in the ordinary manner. The device consists of a bridge-shaped casting bored and tapped to receive the spindle to which the hand-wheel of the valve is secured. A cross-bar is hinged to the bridge, and rests on projections from the spindle, guide-bars being cast with the bridge so as to insure a straight pull upon an automatic link, hinged to the base of the bridge with its free end passing over the cross-bar, and provided with a loop through which the hose is threaded. The hose is screwed at one end to the nozzle of the valve in the usual way, and at the other end its branch pipe is held by a clip serving the purpose of a locking device for the valve mechanism. As soon as the branch-pipe has been released from the clip, and the hose has been run out, a jerk is sufficient to pull down the automatic link, thereby permitting the unbalanced water pressure to open the valve. The operator can readily shut off the water by screwing down the valve spindle. Then, after replacement of the link in position over the cross-bar the valve is again ready for use by means of the automatic adaptor. During the tests it was found that the hydrant adaptors in every case opened the valves when the hose was pulled, irrespective of distance and the direction and run of the hose, and that in most of the tests water could be obtained at the branch more rapidly when the valve was opened by the adaptor than when the valve was opened in the ordinary manner. The saving of time was not shown so favourably as it probably would be in practice, because the tests without using the adaptors were performed by firemen accustomed to the manipulation of hose and valves. It must be borne in mind, however, that in places such as hospitals, hotels, and industrial buildings, where employés are called upon to act the part of firemen, delays are very apt to occur in consequence of flurry, and by the jamming of valves through being turned in the wrong direction by excited people.

NEW STREET WORK IN WANDSWORTH.—A joint-committee of the Wandsworth Borough Council, composed of members of the General Purposes Committee and New Streets Committee, which was appointed in May last to consider a proposal "that in future, new streets work be carried out in the Town Clerk's and the Surveyor's offices as a separate department, and that the persons so engaged be employed at that work only," presented their report this week. They stated that they held six meetings. They were of opinion that much of the work was duplicated, and in some cases triplicated, and that much of the work was necessitated by the system of having collecting clerks. In the western district they found that the usual method was adopted of taking levels and giving datum marks and the preparation of plans before the works were commenced. In the eastern district the work was carried out in a very different manner—often no levels having been taken prior to the work being commenced. About 1,200*l.* was received from the frontagers of new streets under apportionment from April 1, 1906, to March 31, 1907, towards the cost of the staff at the Council House and Surveyor's department. Taking the staff at these places which had been almost entirely employed on new street work, the committee found that the cost of this, without allowing anything for rents, rates and taxes, supervision of the two Surveyors, Town Clerk, and Borough Accountant, and reckoning the occasional services given on new streets work as being nearly equal to the occasional services rendered by the new streets staff when a press occurred in any of the departments, worked out during the period 1906-7 at 1,794*l.*, or 600*l.* more than the percentage on the cost had produced. They recommended that a scheme be adopted whereby an Assistant Surveyor, his assistant, and a clerical staff for the purpose of dealing with new streets be entirely separated from the Council staff with the exception of the supervision of the Town Clerk, Accountant, and Surveyors; that the whole cost of this department be allocated to new streets, and be charged *pro rata* on each new street when the estimate is prepared; that when the notice of apportionment is issued it shall state that objections to the apportionment must be made within twenty-one days, or the charge paid within one month; that the second notice shall be issued at the expiration of the month asking for payment within fourteen days, and that at the end of that period a third notice be issued stating that if the charge be not paid within seven days proceedings will be taken.

UNIVERSITY EXTENSION LECTURES.—Mr. Banister Fletcher, F.R.I.B.A., will commence a course of public lectures on "Gothic Architecture in Europe," illustrated by lantern slides, at the University of London, Imperial Institute-road, South Kensington, S.W., on Monday, September 30, at 8.0 p.m. These lectures will form a continuation of those given on "Ancient Architecture" last session.

THE BATTERSEA POLYTECHNIC.—The Battersea Polytechnic commenced its work for the present session with the reopening of the secondary day schools on the 17th inst. There are now in attendance in these schools 152 boys and 280 girls, and even with the additional premises acquired last year the accommodation is insufficient to meet the demands for secondary education in the district. The day college and day courses opened on Monday, the 23rd inst. Instruction is provided in mechanical and electrical engineering and architectural and constructional work for youths desiring to enter the engineering and building professions, and also preparative for university and other examinations. The chemistry department offers a course of instruction extending over two or three years to persons desiring to become technological chemists or general analysts, and to those engaged in chemical industries desiring to improve their knowledge or to do research work. The school of art and crafts also opened on the above date. This school provides a complete course of instruction in drawing and design as applicable to various industries; and practical classes in such subjects as enamelling on metals, carving wood, stone, or marble, painting on china, and black-and-white drawing. The evening schools reopen on the 30th inst., and will provide courses of instruction for the engineering and building trades, etc.

FIRE TESTS WITH PETROL TANKS.—A series of tests conducted by the British Fire Prevention Committee upon nearly thirty tanks and cans for the storage, transport, and use of petrol show the value of the safety plugs and wire gauze safety tube (on the principle of the Davy lamp) as adopted under the Henze patents by the Safety Non-Explosive Reservoir Company. The safety plug is fitted to the stopper or cap of the tank in such a way that it can be blown off by the pressure of gas which otherwise would burst the vessel if the petrol contained were unduly heated. Assuming the plug to have been blown off, the gas escapes through the gauze tube, burning over the opening if ignited. From the results of the tests to which we refer it is clear that the safeguard afforded by safety plugs is such as to render advisable their compulsroy application to all tanks and vessels used for petrol and highly-inflammable liquids. The safety tubes also operated in a satisfactory manner and prevented the ignition of petrol and petrol vapour inside the vessels, but, as the committee state in their report, the necessity for such a device on all tanks of all sizes is much more difficult to advocate for compulsory installation than the metal safety plug.

THE ROYAL INFIRMARY BUILDINGS, MANCHESTER.—The special committee of the Manchester Corporation, appointed to consider the future use of the site of the Manchester Royal Infirmary in Piccadilly, have decided to invite Mr. Thomas E. Collcutt to report upon the possible adaptability of the buildings to the purposes of a reference library, art gallery, and municipal offices.

LEEDS SCHOOL OF ART.—The winter session of the Department of Architecture, in connexion with the Leeds School of Art, was opened on the 23rd inst., with a lecture by Professor Beresford Pite, on "The Study of Architectural Design." Professor Pite, in opening his lecture, expressed the opinion that architectural design at the present day was distinguished by a lack of serious thought. In many ways it was so easy to design a pretty building. It was so easy, with the draftsmanship one picked up in an office, to throw ornamental features into an architectural design. But we found in a great deal of modern architecture there was no undercurrent of earnest motive; there was an absence of definite ideal. This was very often attributed to the age in which we lived. He ventured to point out, however, that the present day was a time of expansion and progress. It was an age of education, and now, as always, public taste was dependent upon the practitioners of art. He believed that genius and opportunity would be found for advancement if we could concentrate ourselves, say, as a group, as a school, say, in that school, upon a definite architectural ideal. Owing to the work of a few earnest architects, Dublin had acquired a definite architectural character. The same thing had happened in Glasgow and to some extent in Liverpool. He failed to see why that should not be done in any city, especially in a city with a school of art like that of Leeds. If there was a faculty necessary to the architect it was the faculty of dreaming, and of dreaming successfully. He advised students to cultivate this faculty while they had the opportunity of doing so. They would not have so great an opportunity later. Concluding, the lecturer advised students to study Greek architecture for motive and bring away a love of refinement; to take Roman work and enjoy the piling up; Byzantine work for its construction; and Gothic work for the study of its masonry. As to the present age, the age of Renaissance, it was the age in which personality would tell. He counselled students to look at subjects from their own point of view; to give up the pernicious trick of looking at the form apart from the idea behind it; and to give up also the habit of making antiquity of design the sole test of beauty. Lastly, architectural style meant character. Each had a style, and it was for each to put his style into his own work.

THE BRADFORD CORPORATION ARCHITECTURAL STAFF.—A Finance Sub-committee of the Bradford Corporation specially appointed to consider a proposal to amalgamate the architectural staffs of the City Council and the Education Committee, recently met at the Town Hall. Hitherto the departments have had separate staffs, and the proposal to bring them together arose some time ago, when a vacancy occurred in the head position of the Education Committee's Department. The sub-committee decided to recommend an amalgamation, with Mr. F. E. P. Edwards, the City Architect, in the chief position.

"NOTRE DAME, BRUGES."—A correspondent writes to question the statement in our paragraph last week as to the steeple at Bruges being 32 ft. higher than Salisbury spire. The height, 436 ft., was taken from a local guide-book (Salisbury is 404 ft.); but it seems likely that this is inaccurate, and that the 395 ft. given by Baedeker is the more correct.

THE BRICK TRADE.—Much has been reported from time to time of the undoubted depression in the building trade, and of the unremunerative prices prevailing for those engaged in the brick trades. In no department has that been, it is said, more severely felt than in glazed bricks, but if our information is correct (and it is from a reliable source), we have every reason to believe that competition is to take a much severer form, and that those firms who were earliest in the field in the manufacture of these goods are making a determined effort to retain and increase their trade by a drastic reduction in prices.

NEW FOUNTAIN, BALTIC EXCHANGE.—A fountain has been presented to the members of this Exchange by the late Mr. Edward Power, who was for many years connected with the Baltic, and his son, Mr. E. J. Power, who is one of the directors. The fountain is in bronze, surmounted by a life-size figure representing the Nymph of Fortune supporting the Baltic. The boat symbolises the Baltic. The niche is of alabaster and coloured marble, and the floor is of coloured marble and mosaic with the crest of the Baltic introduced. The cast was executed by Burton's Foundry, Thames Ditton, and the architectural work by Messrs. J. Whitehead & Sons, Kennington. The figure which forms the principal sculptural feature is by Mr. E. Whitney-Smith, and was exhibited in the Octagon Room at the Royal Academy this year, where we remember noticing it as an able and effective work.

Capital and Labour.

STATE OF THE BUILDING TRADES.—Employment in August, though still dull, was better than a month ago, and rather better than a year ago. Returns from 691 firms employing 46,062 workpeople at the end of August are summarised below. In the London district there was an increase of 978, or 10·1 per cent., in the number of skilled tradesmen, and of 176, or 2·5 per cent., in the number of labourers employed. In the Northern Counties and Lancashire and Cheshire there was a total decrease of 568, or 4·5 per cent.; and in the remaining districts there was a total increase of 472, or 3·1 per cent. Employment was dull with most branches of the building trades, but better than a month ago and a year ago, except with painters, who reported a decline in employment. Slaters were moderately well employed. The percentage of Trade Union carpenters and joiners unemployed at the end of August was 4·6 as compared with 5·0 a month ago and 5·1 a year ago; and for plumbers, for the same dates, 7·3, 8·8, and 7·5 respectively.

Patents of the Week.

APPLICATIONS PUBLISHED.*

19,409 of 1906.—F. C. BUXTON: *Sliding and Similar Doors.*

This relates to means for effecting the movement of door sections, said means comprising endless chains, each connected to a door section, and engaging with a corresponding number o sprocket wheels of different sizes secured upon a common shaft.

21,392 of 1906.—J. F. JAMIESON: *Lock and Permutation Key.*

This relates to a lock and key therefor, and consists in the key being provided with portions which upon its insertion within the lock move portions of the lock mechanism through the medium of lines of balls to permit the bit to be turned in the lock to operate the bolt.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

PATENTS.—*Continued on page 347.*

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xviii*b*.; Auction Sales, xxx.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competition.

* NOVEMBER 30.—**Hertford.**—NEW OFFICES.—The Corporation of Hertford invite designs for the erection of proposed new offices at a cost not exceeding 3,500*l*. For further particulars refer to an advertisement in this issue.

Contracts.

BUILDING.

SEPTEMBER 30.—**Gorleston.**—REPAIRS.—For repairs to the Odd Fellows' Hall, High-street, Gorleston. Specifications and particulars can be obtained from the secretary, Mr. G. A. Woods, 91, Lower Cliff-road, Gorleston, any evening from 7 to 9.

SEPTEMBER 30.—**Scotswood.**—HOUSES.—Tenders are invited by the Blaydon Co-operative Society for the erection of twelve houses in flats on the Blackett Ord Estate. Plans and specifications may be seen at the Society's office at Blaydon.

SEPTEMBER 30.—**Swords.**—LIBRARY.—For erection of Carnegie Free Library at Swords, Co. Dublin. Plans may be seen at the Dispensary, Swords, and at the office of the architects, Messrs. Anthony Scott & Son, architects, 34, Lower Sackville-street, Dublin.

OCTOBER 1.—**Catcliffe, etc.**—SCHOOL WORKS.—West Riding County Council (Aston Sub-committee) invite tenders for the various works at the undermentioned schools:—Catcliffe Prov. School: New glazed screen, lavatory accommodation, ventilation, and general repairs. Fence Prov. School: Asphalting and conversion of earth closets into w.c.'s. Specifications may be obtained from Mr. S. Abson, Divisional Clerk, Education Offices, Woodhouse.

OCTOBER 1.—**Gosport.**—SCHOOL EXTENSION.—Gosport and Alverstoke Secondary School Governors invite tenders from builders and contractors residing within the parish of Alverstoke for the extension of the school. Plans and specifications may be seen and copies of the bills of quantities and form of tender—for which a deposit of 1*l*. 1s. will be required—may be obtained at the office of the architect, Mr. H. A. F. Smith, Star Chambers, Gosport.

OCTOBER 2.—**Clifton, York.**—ASYLUM BLOCKS.—The Visiting Committee of the North Riding Asylum, Clifton, York, invite tenders for the erection of two blocks for chronic cases at the asylum. Names and addresses to the architect, Mr G. H. Fowler Jones, architect, 8, Lendal, York, with a deposit of 5*l*.

OCTOBER 2.—**Heeley, Sheffield.**—CONVENIENCES.—Sheffield Health Committee invite tenders for conveniences, London-road, Heeley. Specification and plans may be seen, and quantities obtained, at the City Surveyor's Office on payment of 10s.

OCTOBER 3.—**Cork.**—COTTAGES.—Cork R.D.C. invite tenders for building 139 labourers' cottages and fencing same number of cottage plots, at a cost not exceeding 140*l*. per cottage. Plans and specifications and tender forms for the works can be obtained from the Clerk to the R.D.C. on payment of 5s. A deposit of 5*l*. per cottage is required with each tender.

OCTOBER 3.—**New Spynie.**—REPAIRS, ETC.—For the mason, carpenter, plumber, slater, plaster, and painter works of repairs and water supply at the Ecclesiastical Buildings, New Spynie. The plans and specifications may be seen at the office of Mr. John Wittet, architect.

OCTOBER 3.—**Thatcham.**—PREMISES.—For pulling down old cottages and erecting new premises, comprising shop, dwelling house, stabling, etc., at Thatcham, for Messrs. A. & T. Brown. The plans and specifications may be seen at the office of Mr. Walter H. Bell, architect, the Market Place, Newbury.

OCTOBER 4.—**Chesterfield.**—SHED.—Pulling down of old buildings in Theatre-yard and the erection of a stall shed. Plans, specifications, and all particulars may be seen at office of Mr. Vincent Smith, Borough Surveyor, Salter Gate, where bills of quantities may be obtained on payment of 1*l*. 1s.

OCTOBER 4.—**St. Peter's, Newlyn.**—HALL, ETC.—For building, near the church, a hall and class rooms. The drawings and specifications may be seen at the Vicarage.

OCTOBER 4.—**West Bromwich.**—WALL.—West Bromwich Guardians invite tenders for building a wall at the Workhouse, West Bromwich. Specifications and conditions of contract may be seen and forms of tender obtained at the office of Mr. John W. Allen, architect, High-street, West Bromwich.

OCTOBER 5.—**Newlyn.**—OFFICES.—Newlyn Pier and Harbour Commissioners invite tenders for the construction of a block of offices at Newlyn. Plans, etc., and form of tender may be inspected at the office of Mr. H. H. Pezzack, Clerk to the Commissioners, Public Buildings, Penzance, or at the office of the Engineer to the Commissioners, Mr. W. T. Douglass, M.Inst.C.E., 15, Victoria-street, Westminster, S.W. Copies of the specification, etc., may be obtained on application to the Engineer, accompanied by a deposit of 1*l*.

OCTOBER 8.—**Edmonton.**—BATHROOMS.—Edmonton Guardians invite tenders for the erection of two small bathrooms at the Workhouse, Bridport-road, Upper Edmonton, N. Drawings and specifications of the proposed work may be seen at the office of the architect, Mr. Stuart Hill, 106, Cannon-street, E.C., or on application to the Master at the Workhouse.

* OCTOBER 8.—**Lewisham.**—ELECTRICITY SUB-STATION.—The London C.C. invite tenders for the erection of a tramways electricity sub-station at Lewisham, S.E. For further particulars see advertisement in this issue.

OCTOBER 8.—**Morar.**—HOTEL ADDITIONS.—Addition to Station Hotel, Morar, for Mr. John M'Kellaig. Plans and specification can be seen at the office of Messrs. L. & J. Falconer, architects, Fort William, and copies of same at the hotel.

OCTOBER 10.—**Llanishen.**—LODGE, ETC.—The erection of a lodge, also stable buildings and motor house, near Llanishen, for Mr. W. Lloyd. Plans can be seen, and bills of quantities obtained, at offices of Mr. G. E. Halliday, F.R.I.B.A., 19, Castle-street, Cardiff.

* OCTOBER 12.—**Staffordshire.**—SCHOOL, ETC.—The Staffordshire Education Committee invite tenders for new infants' council school at Shelfield, near Walsall, and slight alterations to existing school and a new council school at Short Heath, near Wolverhampton. For further particulars refer to an advertisement in this issue.

* OCTOBER 14.—**Birmingham.**—SCHOOL.—The Birmingham Education Committee invite tenders for the erection of a school, schoolmaster's house, offices, workshops, and cottages in the Elan Valley, near Rhayader, Radnorshire. For further particulars see advertisement in this issue.

* OCTOBER 14.—**Manchester.**—SCHOOL.—The Manchester Education Committee invite tenders for an infants' school and additions and alterations to the existing Ardwick Municipal School, Hyde-road, Manchester. For further particulars refer to an advertisement in this issue.

OCTOBER 14.—**Steeple Langford.**—ALTERATIONS, ETC.—Alterations and repairs to the East End Inn, Steeple Langford, for Messrs. Gibbs, Mew, & Co., Ltd. Plans and specifications can be seen at the offices of Messrs. John Harding & Son, architects and surveyors, 58, High-street, Salisbury.

* OCTOBER 15.—**London, W.C.**—ENLARGEMENT.—The Commissioners of H.M. Works, etc., invite tenders for the enlargement of the County Court at Bloomsbury, W.C. For further particulars refer to an advertisement in this issue.

* OCTOBER 21.—**Portsmouth.**—PAVILION.—Tenders are invited for the erection, completion, and maintenance in thorough repair for twelve calendar months from the completion. For further particulars see advertisement in this issue.

* OCTOBER 22.—**Dublin.**—NEW COLLEGE.—The Commissioners of Public Works in Ireland invite tenders for the superstructure of the new college being erected in Upper Merrion-street, Dublin. For further particulars refer to an advertisement in this issue.

* NO DATE.—**Portsmouth.**—NURSING QUARTERS.—The War Department invite tenders for the erection of new nursing sisters' quarters at Alexandra Hospital, Cosham, Portsmouth. For further particulars refer to an advertisement in this issue.

NO DATE.—**Ross.**—COTTAGES.—For the erection of a pair of small semi-detached cottages, at Ross. Apply to Mr. Arthur H. Pearson, architect, Ross.

NO DATE.—**Springwell.**—WORKMEN'S CLUB AND MANAGER'S HOUSE.—For the erection of workmen's club and manager's house at Springwell. Names and addresses together with a deposit of 1*l*. 1s., to Messrs. Liddle & Browne, architects, Prudential Buildings, Mosley-street, Newcastle, by whom quantities will be supplied

NO DATE.—**Tunstall.**—SCHOOL.—Tunstall Education Committee invite tenders for new Summer Bank-road School's of a public elementary school at Summer Bank-road. Plans and specifications may be seen, and quantities obtained, on payment of 3*l*. 3s., at office of Mr. A. R. Wood, architect, Town Hall, Tunstall.

ENGINEERING, IRON, AND STEEL.

SEPTEMBER 30.—**Harbour of St. Peter-Port, Guernsey.**—CAST-IRON TANK.—The Supervisor is prepared to receive tenders for the supply and erection on the "Tool-house," Careening Hard, of a cast-iron tank to contain about 21,000 gallons. The plan and specification may be seen and forms of tender obtained on application to Mr. J. H. Duquemin, States Engineer, States Office, Guernsey.

SEPTEMBER 30.—**Motherwell, etc.**—BRIDGE WORKS.—Caledonian Railway Company invite tenders for widening of Merry-street Bridges, Motherwell, and renewal of following bridges:—Greenock line, underbridge at 115 miles 41¼ chains; Rutherglen and Coatbridge branch, underbridge at 6 miles 8 chains; Wishaw deviation line, underbridge at 87 miles, 46 chains; London-road branch, overbridge at 0 miles 55 chains. Drawings may be seen at the office of the company's district engineer, 3, Germiston-street, Glasgow, where copies of the specification and schedule may be obtained on payment of 2*l*. 2s.

SEPTEMBER 30.—**Newcastle-upon-Tyne.**—IRONWORK FOR QUAY EXTENSION WORKS.—The ironwork for seven monolith shoes. Specification and form of tender can be obtained on application at the City Engineer's Office, Town Hall, Newcastle-upon-Tyne.

SEPTEMBER 30.—**Wamphray.**—BRIDGE WORKS.—Caledonian Railway Company invite tenders for the renewal of under-bridges at 34 miles south of Wamphray Station on the main line, and at 17 miles 22 chains east of Addiewell Station on the Cleland and Mid-Calder Branch. Drawings may be seen at the office of the Company's District Engineer, Princes-street Station, Edinburgh, where copies of the specification and schedule may be obtained on payment of 2*l*. 2s.

OCTOBER 1.—**Bangour.**—HEATING.—The Edinburgh District Board of Lunacy hereby invite offers for the heating of the recreation hall at Bangour. The relative schedules may be obtained on application to the architect, Mr. Hippolyte J. Blanc, R.S.A., 25, Rutland-square, Edinburgh. The plans and conditions of contract may be seen at the architect's office.

OCTOBER 1.—**Belfast.**—BOILER.—Belfast Guardians invite proposals for supplying and fitting up a steam boiler at the central laundry at Union Workhouse, in accordance with plan and specification prepared by Messrs. Young & Mackenzie, civil engineers, which can be seen at office of Mr. Joseph W. Robb, Clerk of the Union, Clerk's Office, Union Workhouse.

OCTOBER 1.—**Walsall.**—PUMP-HOUSE, ETC.—Walsall Corporation invite tenders for the construction of a pump-house and sewage tank, together with the necessary machinery, at Park Brook, Wolverhampton-road; also the providing and laying of 615 yds. of 6-in. cast-iron main, and 586 yds. 9-in. stoneware sewer, etc. Plans, etc., to be seen at office of Mr. John Taylor, the Borough Surveyor, Walsall, where forms of tender and bill of quantities may be obtained.

OCTOBER 2.—**London.**—WHEEL LATHES.—The Board of Directors of the Burma Railways Company, Ltd., invite tenders for the supply of wheel lathes. Specifications and forms of tender can be obtained at the Company's Offices, 199, Gresham House, Old Broad-street, E.C. For each specification a fee of 1*l*. will be charged, which will not be returned.

OCTOBER 3.—**Cork.**—SINKING WELL, ETC.—Cork R.D.C. invite tenders for (*a*) sinking well, supplying and erecting pump at Donnybrook, Douglas; (*b*) deepening well of pump at Belgrove, near Queenstown; (*c*) cleaning well of pump at Ballynoe, near Queenstown; (*d*) cleaning well, and repairing surroundings of pump at Shanbally; (*e*) cleaning village of Glounthane, caring sluice, and caring urinal (to be erected), for one year from October 5, 1907; (*f*) caring and keeping in repair the Factory Hill waterworks, fountains, etc., for one year from October 5, 1907; (*g*) sinking well, supplying and erecting pump at Killeagh Cross. Forms of tender may be obtained at office of Mr. John Cotter, Clerk of Council, Board-room, Workhouse, Cork.

OCTOBER 5.—**Luton.**—STEEL WORKS.—Luton Parks Committee invite tenders for the supply and delivery of the steel works for a suspension footbridge, and also a quantity of wrought-iron fencing. Full particulars may be obtained from Mr. H. F. L. Fox, A.M.Inst.C.E., Borough Engineer, Town Hall, Luton.

OCTOBER 8.—**London.**—GIRDER WORK.—Great Western Railway Directors invite tenders for the supply of about 196 tons of steel bridge girders and other steel and iron work of British manufacture. Plans and specification may be seen, and forms of tender and bills of quantities obtained, at the office of the Engineer at Paddington Station.

OCTOBER 8.—**Manchester.**—TRACKWORK.—Manchester Corporation invite tenders for the supply of special (permanent way) trackwork. Specifications and forms of tender may be obtained on application to Mr. J. M. M'Elroy, General Manager, Tramways Department, 55, Piccadilly, Manchester, on deposit of 2*l*. 2s.

OCTOBER 8.—**Saltash, etc.**—FOOTBRIDGES.—Great Western Railway Directors invite tenders for the erection of footbridges (in steel and iron) at Saltash, Gwinear-road, and Pewsey Stations. Plans and specification may be seen, and forms of tender and bills of quantities obtained, at the office of the Engineer at Paddington Station.

OCTOBER 14.—**Bishop's Stortford.**—GAS PLANT, ETC.—Bishop's Stortford U.D.C. invite tenders for carrying out Contract No. 1.—Providing and fixing gas engine and suction gas plant. Contract No. 2.—Providing and fixing pumping machinery and pumps. Printed specifications and forms of tender may be obtained upon application to Mr. Thos. Swatheridge, Clerk of the Council, Council Offices, 7, North-street, Bishop's Stortford, accompanied by a deposit in each case of 1*l*. 1s.

✱ OCTOBER 16.—**Sevenoaks.**—HEATING, ETC.—The Guardians of the Sevenoaks Union invite tenders for heating the Union by the low-pressure hot-water system, and erection of a boiler-house, chimney, etc. For further particulars see advertisement in this issue.

OCTOBER 16.—**Wick, etc.**—HARBOUR WORKS.—The Wick and Pulteney Harbours Trustees invite offers for carrying out works for the improvement and extension of the harbours, in accordance with the plans and specifications prepared by Mr. James Barron, M.Inst.C.E., Aberdeen, and which may be seen with Mr. D. W. Georgeson, Harbour Secretary, Wick. Copies of the specification and schedule of quantities may be obtained from Mr. Barron or the Subscriber on payment of 3*l.* 3s.

OCTOBER 19. — **Stacksteads.** — BRIDGE RECONSTRUCTION.—Bacup Corporation invite tenders for the reconstruction, widening, and improvement of the bridge carrying the Blackwood-road over the river Irwell at Stacksteads. Plans may be seen, and specifications and quantities obtained on application to Mr. W. H. Elce, A.M.Inst.C.E., Borough Engineer, and payment of 1*l.* 1s.

NO DATE.—**Bruntcliffe.**—SINKING.—For sinking from Middleton Main to blocking bed, fixing cribs and walling complete, 10 ft. shaft finished.—Victoria Collieries, Bruntcliffe.

MISCELLANEOUS.

SEPTEMBER 30. — **Kingston.** — WOOD. — Kingston Guardians invite tenders for the supply of 50 fathoms of best Swedish board ends, to be delivered at the Norbiton Common Farm, Kingston-road, New Malden. Mr. Jas. Edgell, Solicitor, Clerk, Union Offices, Coombe-road, Kingston-on-Thames.

SEPTEMBER 30. — **Wigan.** — SCAVENGING. — Wigan R.D.C. invite tenders for the cleasing of privies, ashpits, and cesspools (all farm premises excepted), in Parbold, Shevington, Haigh, Worthington, and Wrightington. Henry Ackerley, Clerk, 9, Victoria-buildings, King-street, Wigan.

OCTOBER 1.—**Hounslow.**—REPAIRS TO STEAM ROAD-ROLLER.—Heston and Isleworth U.D.C. invite tenders for the necessary repairs to their 12-ton steam road-roller, in accordance with the specification to be obtained of Mr. J. G. Carey, Engineer and Surveyor to the Council, Council House, Hounslow.

OCTOBER 2.—**London.**—BADGES.—The Receiver for the Metropolitan Police District invites tenders for the supply of enamelled iron badges, plates, etc., for the use of the Metropolitan Police for three years. Printed forms of tender may be obtained on application to the Receiver, New Scotland-yard, London, S.W.

OCTOBER 2. — **London.** — TIMBER.—Great Western Railway Directors invite tenders for the supply of English ash butts and planks, elm butts, planks, and boards, and oak butts. Specification, with form of tender, may be obtained on application to Mr. G. K. Mills, Secretary, Paddington Station, London.

OCTOBER 2.—**Molescroft.**—WELL SINKING.—Beverley Corporation invite tenders for sinking, boring, and steining well and driving adits from the same, together with a line of 10-in. cast iron delivery main, to be laid and jointed. The well is located in the parish of Molescroft, in the East Riding of the county of York, near the Pighill Crossing of the North-Eastern Railway, Market Weighton and Beverley branch. Plans and specification of the work may be seen and the form of tender obtained at the office of Mr. Baldwin Latham, M.Inst.C.E., Parliament Mansions, Victoria-street, Westminster, the engineer for the works, or on application to Mr J. Willis Mills, Town Clerk, 31, Lairgate, Beverley. The quantities of the several works have been taken out, and may be had on application either to the engineer or the Town Clerk on deposit of 5*l.*

OCTOBER 3. — **Beeston.** — LEVELLING GROUND. — Beeston U.D.C. invite tenders for levelling new recreation ground in Dovecote-lane (about four acres). Full particulars, specification, etc., may be obtained from the surveyor at the Public Offices on deposit of 2*l.* 2s.

OCTOBER 3. — **Blaydon.** — SCAVENGING.—Blaydon U.D.C. invite tenders for the removal and disposal of contents of ashpits, house refuse, etc., at Spen, Barlow, High Thornley, etc. Specification, etc., may be obtained from Mr. Robert Biggins, Sanitary Inspector, at the offices of the Council, Blaydon-on-Tyne

OCTOBER 3.—**Cork.**—FENCING.—Cork R.D.C. invite tenders for fencing seventeen additional allotments to existing cottages, at per perch, not to exceed 12s. 6d. Ordnance sheets may be inspected, and specifications and tender forms for the works obtained, at the office of the Clerk to the R.D.C. A deposit of 10s. per plot is required with each tender.

OCTOBER 3.—**London.**—SLEEPERS.—The Crown Agents for the Colonies, acting on behalf of the Government of Ceylon, invite tenders for the supply of 50,000 Australian jarrow wood sleepers. Specification and conditions of contract can be obtained on application at the office of the Crown Agents for the Colonies, Whitehall-gardens, London, S.W., on payment of 1*l.* per copy.

OCTOBER 4.—**Croydon.**—FENCING, ETC.—Croydon R.C. invite tenders for (1) 86 rods of oak pale boundary fencing, etc., at the well and pumping station site off Coldharbour-lane, Waddon; (2) planting a belt of trees, of about 2 acres, round the aforesaid site. Specifications, etc., may be obtained at the office of the Borough Engineer, Town Hall, Croydon, upon payment of a deposit of 1*l.* 1s. in each case.

OCTOBER 4.—**Guildford.**—FURNISHING.—Guildford Guardians invite tenders for the furnishing, etc., of the ward of the Relief Infirmary, at the Workhouse, Warren-road, Guildford. Samples of the goods to be tendered for may be seen at the Workhouse, upon application to the master. Forms of tender may be obtained at office of Mr. W. S. V. Culverne, Clerk to the Guardians, Union Offices, Commercial-road, Guildford.

OCTOBER 5.—**Bradford.**—ELECTRICAL MAINTENANCE. —For the general maintenance of the electric wiring installation, telephones, bells, etc., at the Union Hospital, Horton-lane, Bradford. Application, along with deposit of 1*l.* 1s., to Mr Fred Holland, engineer and architect, 11, Parkinson's Chambers, Hustlergate, Bradford, who will supply particulars.

OCTOBER 7.—**Itchen.**—CARTING.—Itchen U.D.C. invite tenders for carting gravel. Further particulars may be had on application to Mr. T. A. Collingwood, the Council's Surveyor, at his office, Portsmouth-road, Woolston.

OCTOBER 11.—**Londonderry.**—ELECTRIC LIGHTING. —Wiring and fitting the new Municipal Technical School, Londonderry, for electric light, etc., according to plans, specification, and schedules, copies of which may be obtained from the architect, Mr. E. J. Toye, 20, Great James-street, Derry, on deposit of 2*l.* 2s.

OCTOBER 14.—**Kingsclere.**—HAULAGE.—Kingsclere R.D.C. invite tenders for the haulage of materials and water for steam rolling, for six months. Full particulars and forms of tender may be obtained on application to the surveyor, Mr. W. T. Jelfs, surveyor, Kingsclere, Newbury.

NO DATE.—**Prudhoe-on-Tyne.**—CUTTING CLAY.—The Mickley Coal Company invite tenders for the cutting and removing of about 600 cubic yds. of clay, and also the driving of about 70 yds. of clay drift. For further particulars apply to Sidney Bates, Prudhoe Grange, Prudhoe-on-Tyne.

NO DATE.—**Woodlesford.**—ASPHALTING.—For repairing the asphalting of the playgrounds at the Woodlesford Council School. For specifications and quantities apply to Mr. R. J. Smith, Education Offices, Garforth, near Leeds.

PAINTING, etc.

SEPTEMBER 30. — **Oldbury.**—PAINTING.—The U.D.C. of Oldbury, Parks, Estates, and Cemetery Committee, invite tenders for certain work. Painting and decorating at Rounds Green and Langley Parks, and at the Oldbury Cemetery, St. Paul's-road, Smethwick. Specifications may be seen and particulars obtained at the offices of Mr. Thos. H. Shipton, surveyor, Public Offices, Oldbury.

OCTOBER 1. — **Banbury.** — PAINTING. — Banbury Guardians invite tenders for painting, etc., of the outside wood and iron work at the Workhouse Infirmary. Particulars can be obtained from the Master of the Workhouse.

OCTOBER 1.—**Ecclesall.**—PAINTING.—Ecclesall Bierlow Guardians invite tenders for the whole of the outside painting of their Fulwood Cottage Homes. Intending contractors will be shown the work on personal application to the superintendent of the homes.

OCTOBER 3.—**London.**—WHITEWASHING, ETC.—The Guardians of the Poor of the Parish of St. Mary, Islington, invite tenders for whitewashing, painting, etc., at their school, Hornsey-road, N., in accordance with specification and conditions of contract, copies of which may be obtained on application to the headmaster there.

OCTOBER 4.—**Warwick.**—PAINTING, ETC.—Warwick Guardians invite tenders (1) for providing and fixing gas mains and fittings, (2) for exterior painting and other repairs and alterations at the Workhouse, Warwick, according to plans and specifications which may be inspected at the Board Room, Workhouse, Warwick. For further particulars and forms of tender apply to Mr. F. P. Trepess, F.I.A.S., 1, Church-street, Warwick.

✱ OCTOBER 10.—**Hackney.**—PAINTING, ETC.—The Hackney B.C. invite tenders for painting and decorating of the office block, main gateways, and works office, test-room, and meter-room at the electricity works. For further particulars refer to an advertisement in this issue.

ROADS, SANITARY, AND WATER WORKS.

SEPTEMBER 30.—**Innerleithen.**—SEWER.—For laying an 18-in. sewer in part of the burgh. The plan and specification may be seen on application to the surveyor, Mr. A. M'Laren, Hill House, Innerleithen

SEPTEMBER 30.—**Newburn.**—TARRED MACADAM.—The U.D.C. of Newburn invites tenders for the supply of 300 to 400 tons of tarred macadam for footpath work, also about 1,200 yds. of kerbing. Further particulars may be obtained from Mr. Thomas Gregory, Council Offices, Newburn.

SEPTEMBER 30.—**Perth.**—GARTMORE WATERWORKS.—The Western District Committee invite tenders for supplying and laying about 2¾ miles of 3-in. diameter cast-iron pipes, including sluice valves, etc., together with the construction of incidental and relative works. The plans may be seen at the office of the engineers, Messrs. Crouch & Hogg, C.E., 14, Blythswood-square, Glasgow, from whom copies of the specification, schedule of quantities, and form of tender may be obtained on payment of 1*l.* 1s.

SEPTEMBER 30. — **Potterne.** — SEWER. — Devizes R.D.C. invite tenders for laying of a sewer in the parish of Potterne. Plans and specification can be seen on applying to Mr. Jas. M. Butcher, Sanitary Inspector, 5, Southbroom-terrace, Devizes.

SEPTEMBER 30.—**Prestwich.**—SEWERS.—Prestwich U.D.C. invite tenders for (1) the construction of stoneware sewer from Egerton-street to Rectory-lane, (2) works of private street improvement in Birch-grove, (3) works of private street improvement in Dashwood-road. General conditions of contract can be inspected at the surveyor's office, Chester Bank, Prestwich. The plans, specifications, and quantities of the proposed works will be open for inspection at the office of the surveyor. Copies of the bills of quantities and any further information that may be required can be obtained from the surveyor on payment of 2*l.* 2s.

OCTOBER 1.—**Harrogate.**—STREET IMPROVEMENT WORKS.—Harrogate Corporation invite tenders for the private street improvement works required at Back-road, on the north side of Bower-road. The specification may be seen and quantities obtained at office of Mr. F. Bagshaw, Borough Engineer and Surveyor.

OCTOBER 1.—**Kirkby, Ulverston.**—WATER SUPPLY. —Ulverston R.D.C. invite tenders for Kirkby water supply. Plans may be seen and specifications, bills of quantities, may be obtained on application to Mr. W. F. Y. Molineux, the Council's Engineer, Town Hall, Ulverston.

OCTOBER 1.—**Maidstone.**—STREET WORKS.—Maidstone U.D.C. invite tenders for the levelling, paving, metalling, flagging, kerbing, channelling, and sewering, etc., of Evelyn-road and the second portion of King Edward-road, in the Borough of Maidstone. Plans, etc., may be seen and forms of tender, etc., obtained on application to Mr. T. F. Bunting, the Borough Surveyor, at his office, Fair Meadow, Maidstone.

OCTOBER 2.—**Neilston.**—WATER WORKS.—The First or Upper District Committee of the County of Renfrew invite tenders for laying about 1,370 yds. of 6-in. diameter cast-iron pipes, including setting valves, etc., together with the construction of incidental and relative works. The plans may be seen at the office of the engineer, Mr. J. Gilchrist Bennett, C.E., 12, High-street, Paisley, from whom copies of the specification, schedule, and form of tender may be obtained on payment of 1*l.*

OCTOBER 2.—**Rathdown.**—SEWERAGE WORKS.—Rathdown No. 1 R.D.C. invite tenders for carrying out the extension of the Foxrock sewerage scheme in accordance with the plans and specification prepared by Mr P. H. M'Carthy, M.A., B.E., M.Inst.C.E.I., 39, Westmoreland-street, Dublin. A copy of the specifications, quantities, and form of tender will be supplied to each competitor on depositing 2*l.* sterling.

OCTOBER 2.—**Warminster.**—SEWAGE WORKS.—Warminster U.D.C. invite tenders for subsidence tanks, screening tanks, etc., for their sewage farm. Specifications may be obtained, and drawings inspected, at the offices of Professor Henry Robinson, M.Inst.C.E., Parliament-mansions, Victoria-street, Westminster, S.W., or at the District Council's Offices at Warminster.

OCTOBER 3.—**Granton.**—SEWER.—Edinburgh Magistrates and Council invite offers for the construction of a new 3-ft. diameter cast-iron outfall pipe sewer at Wardie Burn, on the foreshore at Granton, all conform to plans, specification, and schedule of measurement prepared by the Burgh Engineer, from whom schedules of measurement and all particulars may be obtained.

OCTOBER 4.—**Beddington.**—CLINKER FILLING FOR FILTER BEDS.—Croydon Corporation invite tenders for the supply and delivery of about 10,000 tons of clinker filling for the continuous filter beds at the new works, Beddington Sewage Farm. Specification, etc., may be obtained at the office of the Borough Engineer, Town Hall, Croydon, upon payment of a deposit of 1*l.* 1s.

OCTOBER 4.—**Cheriton Fitzpaine.**—SEWERAGE WORKS.—The Crediton R.D.C. invite tenders for the construction of sewerage works in the parish of Cheriton Fitzpaine. Plans and specifications may be seen at office of Mr. William Pope, Clerk to the Council, 31, High-street, Crediton, and also on application to the engineer, Mr. W. F. Siddalls, Drumore, Tiverton, from whom bills of quantities and form of tender may be obtained on payment of a deposit of 2*l.*

OCTOBER 7. — **Newent.** — WATER SUPPLY. — Newent R.D.C. invite tenders for supplying and laying about two miles of 3-in., 4-in., and 5-in. cast-iron water mains. Plans may be inspected, and copies of the specification and quantities obtained, at the office of Mr. Henry J. Weaver, A.M.Inst.M.E., F.G.S., consulting engineer, Northgate-mansions, Gloucester, on payment of 2*l.* 2s.

OCTOBER 7.—**Wishaw.**—DALZELL AND NETHERTON DRAINAGE.—The District Committee of the District of the Middle Ward of the County of Lanark invite tenders for the construction of about 680 lineal yds. of a pipe sewer, 9 and 12 in. in diameter, from near the Excelsior Ironworks to Muirhouse Lodge, Wishaw. Plans may be seen and copies of the specification and schedule of measurement obtained at the office of Mr. W. L. Douglass, C.E., District Engineer, District Offices, Hamilton, on payment of 1*l.*

OCTOBER 8.—**Esher.**—SEWER.—The U.D.C. of Esher and the Ditton invite tenders for the laying of 542 ft. run of 9 in. stoneware pipe sewer in Foley-road, Claygate. Plans and specifications can be seen at office of Mr. E. A. Everett, Clerk, Council Offices, Portsmouth-road, Thames Ditton.

OCTOBER 9.—**Salisbury.**—ROAD EXTENSION.—Extension of St. Mark's-avenue, the construction of sewers, surface-water drains, manholes, gullies, etc., for the Ecclesiastical Commissioners for England and their surveyors (Messrs. Clutton, 5, Great College-street, Westminster Abbey, London, S.W.). Plans, etc., prepared by Messrs. Lemon & Blizard, MM.Inst.C.E., engineers for the works, may be inspected at their Salisbury office, 29, Market-place, and copies of bills of quantities obtained on depositing the sum of 2*l.* 2s.

OCTOBER 11.—**Bournemouth.**—SEWER.—Tenders are invited for new sewer, Lorne Park. Full particulars, forms of tenders, specifications, and schedules can be obtained of the Borough Engineer, Mr. F. W. Lacey, at whose office drawings can be seen on deposit of 1*l.* 1s.

OCTOBER 12.—**Bellshill.**—BELLSHILL DRAINAGE—The District Committee of the District of the Middle Ward of the County of Lanark invite tenders for providing and laying about one mile of outfall and intercepting sewers, and constructing relative works. Plans may be seen and copies of the specification and schedule of measurement obtained at the office of Mr. W. L. Douglass, C.E., District Engineer, District Offices, Hamilton, on payment of 1*l.*

OCTOBER 14. — **Braintree.** — KERBING. — Braintree R.D.C. invite tenders for the supply and delivery to Braintree Station of 300 yds. of 10-in. by 4-in. tooled-edge hard York kerbing. Samples of stone to be delivered at offices of Mr. C. V. Bright.

OCTOBER 14.—**Forest Hill, Lewisham.**—KERBING, ETC.—Lewisham B.C. invite tenders for kerbing, channelling, and metalling the roadway, and paving the footpaths with artificial stone (in separate contracts), of Lowther-hill, Forest Hill. The plans and specifications may be seen, and forms of tender obtained, at the Town Hall, Catford (Surveyor's Department).

✱ OCTOBER 14.—**Tooting.**—MAKING-UP AND PAVING. —The Wandsworth B.C. invite tenders for making-up and paving part of Rostella-road Tooting. For further particulars refer to an advertisement in this issue.

OCTOBER 24.—**Sowerby Bridge.**—SEWAGE WORKS.—Sowerby Bridge U.D.C. invite tenders for the supply and delivery of 3-in. and 4-in. agricultural land drain tiles (unglazed). Mr. C. L. Whitehead, C.E., Engineer, Sowerby Bridge.

★ OCTOBER 29.—**Salisbury.**—ROAD EXTENSION.—The Ecclesiastical Commissioners for England invite tenders for the extension of St. Mark's-avenue, the construction of sewers, surface-water drains, manholes, gullies, etc. For further particulars refer to an advertisement in this issue.

NO DATE.—**Keighley.**—PIPE LAYING, ETC.—To let, about three miles of 3-in. water pipe laying, etc. Apply to Messrs. Wm. Morley & Sons, contractors, Keighley.

STONE, MATERIALS, AND STORES.

OCTOBER 1.—**Margate.**—ROAD MATERIALS.—The council invite tenders for the supply of granite, etc. Specifications and forms of tender can be obtained on application to Mr. E. A. Borg, Borough Surveyor, Margate.

OCTOBER 2.—**Weybridge.**—MATERIALS.—The U.D.C. of Weybridge invite tenders for the supply of road materials. Particulars and forms of tender may be obtained on application to Mr. John S. Crawshaw, Surveyor to the Council, at the Council Offices, Weybridge.

OCTOBER 3.—**West Ham.**—WIRES AND CABLES.—West Ham Corporation invite tenders for the supply and delivery of indiarubber-covered wires and cables for the six months ending March 31, 19[illegible]. Forms of tender and full particulars may be obtained on application to the Engineer and Manager, West Ham Corporation Electric Supply, 84, Romford-road, Stratford, E.

★ OCTOBER 8.—**London.**—GRAVEL.—The London C.C. invite tenders for the supply of fine binding gravel delivered to various parks, gardens, and open spaces. For further particulars refer to an advertisement in this issue.

OCTOBER 8.—**London.**—SHINGLE BINS.—Islington B.C. invite tenders for the supply and delivery of galvanised wrought-iron shingle bins and cast-iron orderly bins. A specification and drawing of the shingle bins and a specification and sample of the orderly bins may be seen, and a form of tender obtained, upon application to the Borough Engineer, Mr. J. Patten Barber, at the Town Hall, Upper-street, N., and payment of 2*l.* 2*s.*

OCTOBER 9.—**Haslingden.**—GRANITE SETTS.—Haslingden T.C. invite tenders for the supply of about 2,050 tons of Penmaenmawr granite setts and about 1,000 tons of Pwllheli granite setts, delivered at Haslingden and Baxenden Stations. Specifications may be obtained on application to Mr. J. Singleton Green, Borough Surveyor.

OCTOBER 14.—**Broadstairs.**—ROAD MATERIALS, ETC.—Broadstairs and St. Peter's U.D.C. invite tenders for:—(*a*) Hire of steam roller and scarifier; (*b*) for the supply of 250 tons of granite macadam; (*c*) for the supply of 1,200 cubic yds. (or thereabouts) of broken pit flints; (*d*) for the supply of 300 cubic yds. of fine pit gravel. Form can be obtained of Mr. H. Hurd, C.E., Town Surveyor.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*TEACHER FOR BUILDING CONSTRUCTION AND DRAWING	Woolwich Polytechnic	Not stated	No date

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*BUILDING SITE, 57, KNIGHTRIDER-STREET, E.C.—At the Mart	Norton, Trist, & Gilbert	Oct. 9
*FREEHOLD BUILDING SITE, HATTON GARDEN—At the Mart	S. Walker & Son	Oct. 15
*GOODWILL OF A GRANITE FLAG COMPANY, HARLESDEN—At the Mart	Dunn, Soman, & Coverdale	Oct. 16
*FREEHOLD PROPERTY, GRAYS—At the Mart	Douglas Young & Co.	Oct. 23
*FREEHOLD ESTATE, LOWER EDMONTON—At the Mart	Douglas Young & Co.	do.

PATENTS.—*Continued from page 344.*

22,443 of 1906.—R. THOMSON: *Kitchen Ranges and Stoves.*

This relates to a fire cooking range or stove, having in combination an oven with a continuous oven flue round it, valves for directing the gases round the oven, a trivet or shelf, a fire door, and an ashpan with shelf.

23,150 of 1906.—F. JAGGER: *Lifts.*

This relates to lifts of the type used for the conveyance of passengers and goods in which the cage is suspended from a rope or ropes started by means of a chain rod or the like, adapted to be locked by a hand lever, and in which both the cage gates and the floor gates remain locked until the cage has been stopped at a floor and the starting chain or the like locked, and consists in connecting to such lift a rod suspended over the cage gate, and adapted to be alternately raised and lowered thereby, a bolt carried by the cage, and a slide suspended from the said rod having each a ward so arranged in relation to each other that, when unlocking the cage starting chain, the said bolt will lock the said slide and the said suspended rods the cage gate in its closed position, and, when locking the said chain, the said bolt will release the said slide, and thereby allow the cage gate to be opened.

23,578 of 1906.—R. J. PARKES: *Means for Reseating Taps or Valves.*

This relates to means for reseating taps or valves consisting of the combination of a central spindle carrying an interchangeable rose cutter, a positively acting feed nut for said spindle, a socket surrounding such feed nut and spindle, and whose lower end is made in the form of concentric steps integral therewith, and means for clamping the device in position on the flange of the valve casing without damaging the internal screw-thread thereof.

23,770 of 1906.—E. L. NEWSOME and M. NEWSOME: *Apparatus for Ventilating Water-Closets, Urinals, and the like.*

This relates to apparatus for automatically ventilating water-closets, urinals, and the like, and consists in arranging the fan so as to withdraw foul air both from the apartment and from the basin and flush or soil-pipe simultaneously.

23,929 of 1906.—J. E. BICE: *Seat Guard for Water-Closets.*

This relates to seat guards for water-closets of the type consisting of a roll of antiseptic paper provided with openings and perforations, and mounted to revolve at the rear of the seat to enable a length of the paper to be unrolled for covering the seat when required, and consists in mounting the roll upon upright standards at the rear of the seat for the purpose of preventing dirt or dust accumulating around the roll.

25,485 of 1906.—D. BUHLMANN: *Cooking Stoves or Ranges.*

This consists in the combination in a cooking stove of two compartments, one disposed above the other, the upper one being constructed to retain heat and to hold a cooking vessel capable of being let down into the lower compartment, which latter contains a lamp or other heat-generating means, slides separating the two compartments.

29,409 of 1906.—B. C. BECHTEL: *Brick, Block, or Tile Cutters.*

This relates to a brick, block, or tile cutter, comprising an endless travelling table including pivotally-joined sections, a rotary cutting reel actuated by and co-operating with the endless travelling table, and adjustable means whereby the sections and the spacing of reel actuating portions carried thereby can be uniformly varied in length to vary the length of the bricks, blocks, or tiles cut from the plastic material bar.

501 of 1907.—N. BROOKE and BROOKES', LTD.: *Partition Brick.*

This relates to a partition brick constructed in the form of two slabs of the usual length, breadth, and thickness, a suitable distance apart, and consists in connecting them by three circular or elliptical portions, preferably of varying sizes and positions, instead of by quadrangular end-pieces. The hollow portions of the brick are filled with cement or other binding material.

1,237 of 1907.—E. E. CROUCH and A. G. CROUCH: *Means for Simultaneously Securing a Number of Doors or Gates.*

This relates to a travelling handle plate or lever of any workable material working in conjunction and accordance with the spindle of the handles and provided with a portion of a ratchet wheel or the like in the lower extremity adapted to receive the tongue of a pawl, which pawl is fitted to the casing of the lock by means of a pin or the like in such a position that when the pawl is out of action sufficient clearance is left for the lower extremity of the travelling handle plate or lever, and adapted to engage the part of the ratchet wheel of the said travelling handle plate or lever when lifted by a piston or the like the ram of which is responsive to air pressure, vacuum, and the like.

4,486 of 1907.—H. P. DOUGLAS and G. STEPHENSON: *Fastenings for Gates.*

This relates to a gate fastener comprising in combination a sliding bolt pivoted to a heavy-ended bell crank lever, a pivot bracket supporting the said lever, a hole or guide for the bolt, and a single or double incline secured upon the gate post and having a slot for the reception of the said bolt.

5,539 of 1907.—DR. O. ZIMMERMANN: *Tubes for Condensers, Heaters, and like Tubular Apparatus.*

This relates to the fitting or mounting of bundles of tubes in condensers, coolers, heaters, and the like tubular apparatus, and consists in mounting the ferrules, in one end of which a number of tubes are held by metal cast around them, by expanding in any ordinary way into a tube plate or casting metal around said ferrules to form a tube plate.

6,971 of 1907.—THE MINIMAX CONSOLIDATED, LTD.: *Device for Recovering Excess of Paint or Colour in Paint-spraying and like Machines.*

This relates to a suction pipe for use in connexion with draught hoods for painting purposes, and is characterised in that the current of air which is charged with particles of paint or colour is subjected to a deviation in its direction of movement one or more times in different parts of the pipe, so that different rates of movement of the current can be obtained, in a manner that can be regulated, for the purpose of separating out the particles of paint or colour contained in the air current.

9,752 of 1907.—W. R. MARTIN: *Brick-drying Apparatus.*

This relates to an elongated brick-drying house having an enclosed steam-pipe drier, comprising superimposed layers of pipes connected to a source of steam supply, and constituted by shelves for supporting pallets of brick, the roof of the house having a protected off-draught opening or openings, and the side walls of the house having doors adapted for opening the sides at or from the bottom whereby the bricks can be dried by steam heat, assisted as desired by draughts entering at the bottom from the sides of the house.

11,033 of 1907.—W. J. KINSMAN and A. W. KINSMAN: *Chimney Cowls.*

This relates to a chimney cowl of the type having vertical flanged openings and covering guards, in which five flanged openings are provided, having guards mounted on wire supports, and open at the lower end and closed at the upper.

12,372 of 1907.—W. GROSSMANN: *Moulding Boxes of Moulding Machines.*

This relates to an apparatus for holding moulding boxes in register in the frames of moulding machines, comprising a set screw composed of a handled spindle with a press spindle loosely connected to the screw spindle, said press spindle being formed with a groove engaging with a pin in the frame of the moulding machine, serving to relieve the mould box of torsional strain.

19,356 of 1906.—H. W. HENNES and T. B. LARK: *Revolving Doorways and Turnstiles.*

This relates to a revolving doorway comprising a centre pillar, with projecting plates on which several wings or doors can swing, and a door pivot with extension bar with which the clutch of the cross bar engages.

19,108 of 1906.—F. C. SMITH: *Outlet Fittings and Overflow Fittings of Baths, Lavatories, and Sinks.*

This relates to an outlet fitting or an overflow fitting for a bath, lavatory, or sink, and comprises the combination of a flanged and externally screw-threaded spigot part made with a bottom grating, and a flanged and internally screwed socket part adapted to screw on to said spigot part, the substance of the bath, or lavatory, or sink being gripped between the flanges of the spigot and socket parts.

22,185 of 1906.—J. ROEDER: *Pipes having Beaded Ends or Collars and Loose Flanges.*

This relates to a pipe end comprising in combination a flange loosely fitting upon the pipe near one end thereof and a bead pressed up from the metal of the pipe on each side of the flange to keep it in position, the beads being formed by longitudinal pressure applied at one end of the pipe.

25,541 of 1906.—J. R. LITTLE: *Fireproof Floors and Roofs.*

This relates to fireproof flooring constructed of tubes or blocks of concrete supported by reinforcing rods and bars extending between the main girder or walls.

25,935 of 1906.—E. J. BRADLEY and R. FORGE: *Flexible Couplings for Pipes.*

This relates to an automatic or self-locking flexible pipe joint and coupling with the extremities flanged or reinforced, and with non-elastic bands to prevent the rubber in the flanges expanding when the tubes are pulled.

27,059 of 1906.—C. HOCKE: *Process for Calcining the Raw Material for Manufacturing Cement.*

This relates to a process for calcining in kilns or shaft furnaces raw material for cement, in which the raw material is supplied to the furnace intimately mixed with finely divided combustible, the mixture being in the wet condition, and is characterised by such a quantity of water being supplied on the press to the raw material during the production of blocks of the same that said blocks on being thrown into the furnace lose their shape again and subside into a cake, filling up the whole cross-sectional area of the furnace.

11,065 of 1907.—F. HENNEBIQUE: *Walls of Ferro-Concrete for Foundations, Retaining Walls, Sluices, Bridge Piers, Dykes, and the like.*

This relates to walls of ferro-concrete for foundations, retaining walls, sluices, bridge piers, dykes, and the like, consisting of a series of vertical water-tight caissons closed at their base and adapted to be ballasted through openings at the top (with water for the flotation during the construction, and eventually with water and solid materials when once the construction is finished), firmly connected with a suitable number of boxes open at both ends and forming pipes for the introduction and partial retention between their walls of solid filling material (ashlar rubble or the like), a portion of which, descending under the open ends of these pipes and spreading beneath the closed bottom of the adjacent caissons, freely accumulates on the ground, filling up its irregularities and producing mounds, the remainder of the columns of the materials following these movements without the caissons and the pipes or boxes, the whole of which forms the fixed monolith part.

23,262 of 1906.—W. J. THOMSON: *Flexible Couplings for Pipes.*

This relates to a flexible coupling and comprises the combination with a member to be connected, and formed with a hollow boss having external projections of a pipe adapted to enter said hollow boss, a spring clip through which said pipe passes, said clip being adapted to be slipped over said boss and having slots engaged by said projections, and packing interposed between the clip and the boss.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 10.—By BENJAMIN SIMONS & CO. (at Alford).

Cumberworth, Lincoln.—Farmhouse, etc., 80 a. 0 r. 30 p., f. £2,675
Strubby, Lincoln.—Two Farmhouses, 119 a. 2 r. 9 p., f. and l. 3,130
Trusthorpe, Lincoln.—Cottage and enclosure of arable land, 23 a. 2 r. 20 p., f. 540

By MADDISON, MILES, & MADISON (at Great Yarmouth).

Great Yarmouth, Norfolk.—17 to 21, Dene Side, f., e.r. 48*l.* 8*s.* 555
12, Well-st., u.t. 17 yrs., g.r. 6*s.* 6*d.* 105
Cobholm Island.—1, Cetewayo-ter., f., w.r. 14*l.* 6*s.* 155
Gorleston, Suffolk.—35, Blackwall Reach, f., w.r. 11*l.* 14*s.* 160

September 14.—By FENN & CO. (at Colchester).

St. Osyth, Essex.—The Lodge farm, 220 a. 3 r. 12 p., f. 2,950
Rouse's and Pump farms and three enclosures of land, 124 a. 3 r. 21 p., f. 2,435

September 17.—By GEO. HEAD & CO.

Spitalfields.—24 to 32 (even). Booth-st. (s.), and 1 to 8. Perry's-av., u.t. 51 yrs., g.r. 325*l.* 7*s.*, e.r. 1,820*l.* 170

By RIPPON, BOSWELL, & WHITAKER (at Totnes).

Ugborough, Devon.—East Peeke and Pennaton farms, 104 a. 1 r. 37 p., f. 3,045

September 18.—By BAXTER, PAYNE, & LEPPER.

Bromley, Kent.—127, Widmore-rd., f., p. 1,000

By R. W. DENYER & CO.

Codford St. Peter, Wilts.—Ashton Lodge 3 acres, f. 2,100
Dorking, Surrey.—Harrow-rd., Hillcote, f., p. 710

September 19.—By DRYSDALE, NURSE, & CO.

Stoke Newington.—102, Kyverdale-rd., u.t. 74 yrs., g.r. 7*l.*, e.r. 42*l.* £395

***Contractions used in this list.*—F.g.r.** for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

MEETINGS.

FRIDAY, SEPTEMBER 27.

Royal Sanitary Institute.—Dr. A. Wellesley Harris on "Duties of a Sanitary Inspector." 7 p.m.

SATURDAY, SEPTEMBER 28.

Northern Architectural Association.—Meeting at Wallsend, when a visit will be made to the Western Council School and to St. Luke's Church.

MONDAY, SEPTEMBER 30.

University of London (South Kensington).—Mr. Banister Fletcher on the History of Architecture, second year. Part 2, "Mediæval Architecture" (Introductory Lecture). 8 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Bostock Hill on "Infectious Diseases." 7 p.m.

TUESDAY, OCTOBER 1.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Bostock Hill on "Methods of Disinfection." 7 p.m.

Institute of Sanitary Engineers (Students' Lecture).—Mr. N. W. Hoskins on "Mechanical Physics." 7 p.m.

WEDNESDAY, OCTOBER 2.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Bostock Hill on "Elementary Statistics." 7 p.m. Inspection and demonstration at John Knight & Sons' Soap Works, Silvertown, at 3 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Institute of Sanitary Engineers.—Sessional meeting. 8 p.m.

THURSDAY, OCTOBER 3.

Civil and Mechanical Engineers' Society (Caxton Hall (late Westminster Town Hall) Room 18).—An address will be delivered by the President, Mr. W. N. Twelvetrees, M.I.M.E. 8 p.m.

Royal Sanitary Institute.—Demonstration of Bookkeeping as carried out in a Sanitary Inspector's Office, at the Public Health Office, Town Hall, Upper-street, Islington, N., at 7 p.m., by Mr. James R. Leggatt, Superintendent Public Health Department, Borough of Islington.

FRIDAY, OCTOBER 4.

The Architectural Association.—Annual General Meeting. Address by the President (Mr. Walter Cave) and distribution of prizes. 7.30 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. E. J. Steegmann on "Elementary Science—Physics, Chemistry."—I. 7 p.m.

SATURDAY, OCTOBER 5.

Royal Sanitary Institute.—Inspection and demonstration at the sewage and destructor works, Ealing, at 2.15 p.m., conducted by Mr. Charles Jones, M.Inst.C.E., Borough Engineer and Surveyor.

Institute of Sanitary Engineers.—Visit to Engineering and Machinery Exhibition, Olympia, W. 2.30 p.m.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance. The Editor cannot undertake to read and consider articles offered for acceptance unless they are type-written.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 7 0	per 1000 alongside, in rive
Bough Stocks and Grizzles	1 0	,, ,, ,,
Picked Stocks for Facings	2 10 0	,, delivered.
Flettons	1 6 0	,, at railway depôt.
Red Wire Cuts	1 14 0	,, ,, ,,
Best Fareham Red	3 12 0	,, ,,

BRICKS, &c. (*continued*).

	£ s. d.	
Best Red Pressed Ruabon Facing	5 0 0	per 1,000, at railway depôt.
Best Blue Pressed Staffordshire	3 15 0	,, ,, ,,
Do. Bullnose	4 0 0	,, ,, ,,
Best Stourbridge Fire Bricks	3 14 0	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	12 0 0	,, ,, ,,
Headers	11 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	16 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamferred, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays, Chamferred, Squints	14 0 0	,, ,,
Second Quality White and Dipped Salt Glazed	2 0 0	,, less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 6	,, ,,
Best Portland Cement	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	,, ,,
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1	,,
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½	

	s. d.	
Ancaster in blocks	1 10	per ft. cube, deld. rly. depôt
Rear ,,	1 6	,, ,,
Gremshill ,,	1 10	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 2	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,

YORK STONE—*Robin Hood Quality.*

Scappled random blocks	2 10	,, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft. super., ,,
6 in. rubbed two sides ditto, ditto	2	,, ,,
3 in. sawn two sides slabs (random sizes)	0 11½	,, ,,
in. to 2½ in. sawn one side slabs (random sizes)	0 7½	,, ,,
1½ in. to 2 in. ditto, ditto	0 6	,, ,,

HARD YORK—

Scappled random blocks	3 0	per ft. cube, ,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft. super. ,,
6 in. rubbed two sides ditto	3 0	,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,,
2 in. self-faced random flags	0 5	,, ,,

SLATES.

In. In.	£ s. d.	
20×10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20×12 ,, ,,	13 17 6	,, ,,
20×10 first quality ,,	13 0 0	,, ,,
20×12 ,, ,,	13 15 0	,, ,,
16×8 ,, ,,	7 5 0	,, ,,
20×10 best blue Portmadoc	12 12 6	,, ,,
16×8 ,, ,,	6 12 6	,, ,,
20×10 best Eureka unfading green	15 17 6	,, ,,
20×12 ,, ,,	18 7 6	,, ,,
18×10 ,, ,,	13 5 0	,,
16×8 ,, ,,	10 5 0	,, ,,
20×10 permanent green	11 12 6	,, ,,
18×10 ,, ,,	9 12 6	,, ,,
16×8 ,, ,,	6 12 6	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. depôt.
Hip and Valley tiles	3 7	per doz. ,,
Best Broseley tiles	50 0	per 1000 ,,
Do. Ornamental tiles	52 6	,, ,,
Hip and Valley tiles	4 0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	per 1000 ,,
Do. Ornamental do.	60 0	,, ,,
Hip tiles	4 0	per doz. ,,
Valley tiles	3 0	,, ,,

TILES (*continued*).

Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 at rly. depôt.
Do. Ornamental do.	54	6	,,
Hip tiles	4	1	per doz.
Valley tiles	3	8	,,
Best "Rosemary" brand plain tiles	48	0	per 1000
Best Ornamental tiles	50	0	,,
Hip tiles	4	0	per doz.
Valley tiles	3	8	,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000
Do. pressed	47	6	,,
Do. Ornamental do.	50	0	,,
Hip tiles	4	0	per doz.
Valley tiles	3	6	,,

WOOD.

Building Wood.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13 10 0	... 15 0 0
Deals: best 3 by 9	13 0 0	... 14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	... 12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less thn best.
Battens: seconds	0 10 0	,, ,,
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	... 10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	... 9 10 0
Foreign Sawn Boards—1 in. and 1½ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	,,

	At per load of 50 ft.		
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	...	5 0 0
Seconds	4 0 0	...	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	...	3 15 0
Small timber (6 in. to 8 in.)	3 0 0	...	3 10 0
Swedish balks	2 10 0	...	3 0 0
Pitch-pine timber (50 ft. average)	4 0 0	...	4 15 0

Joiners' Wood.	At per standard.		
White Sea: first yellow deals, 3 in. by 11 in.	24 0 0	...	25 0 0
3 in. by 9 in.	22 0 0	...	23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	...	18 0 0
Second yellow deals, 3 in. by 1 in.	18 10 0	...	20 0 0
,, ,, 3 in. by 9 in.	17 10 0	...	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	...	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	...	15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	...	12 0 0
Petersburg first yellow deals, 3 in. by 11 in.	21 0 0	...	22 10 0
Do. 3 in. by 9 in.	18 0 0	...	19 10 0
Battens	13 10 0	...	15 0 0
Second yellow deals, 3 in. by 11 in.	16 0 0	...	17 0 0
Do. 3 in. by 9 in.	14 10 0	...	16 0 0
Battens	11 0 0	...	12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	...	14 0 0
Do. 3 in. by 9 in.	12 10 0	...	14 0 0
Battens	10 0 0	...	11 0 0
White Sea and Petersburg—First white deals, 3 in. by 11 in.	14 10 0	...	15 10 0
,, ,, 3 in. by 9 in.	13 10 0	...	14 10 0
Battens	11 0 0	...	12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	...	14 10 0
,, ,, 3 in. by 9 in.	12 10 0	...	13 10 0
,, ,, battens	10 0 0	...	11 0 0
Pitch pine: deals	18 0 0	...	21 0 0
Under 2 in. thick extra	0 10 0	...	1 0 0
Yellow Pine—First, regular sizes	44 0 0	upwards.	
Oddments	32 0 0	,,	
Seconds, regular sizes	33 0 0	,,	
Yellow Pine oddments	28 0 0	,,	
Kauri Pine—Planks, per ft. cube	0 3 6	...	0 5 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 3 0	...	0 3 6
Small ,, ,,	0 2 6	...	0 2 9
Wainscot Oak Logs, per ft. cube	0 5 6	...	0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	...	0 0 9½
¾ in. do. do	0 0 7	...	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	...	0 1 0
Selected, Figury, per ft. super. as inch	0 1 6	...	0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	...	0 1 0
Teak, per load	17 0 0	...	22 0 0
American Whitewood Planks, per ft. cube	0 4 0	...	0 5 0

Prepared Flooring, etc.—	Per square.		
1 in. by 7 in. yellow, planed and shot	0 13 6	...	0 17 6
1 in. by 7 in. yellow, planed and matched	0 14 0	...	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	...	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	...	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	...	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	...	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	...	0 13 6
1 in. by 7 in. ,, ,,	0 14 0	...	0 18 0
¾ in. by 7 in. white ,, ,,	0 10 6	...	0 11 6
1 in. by 7 in. ,, ,, ,,	0 12 9	...	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	7 15 0	... 8 5 0
Compound Girders, ordinary sections	10 0 0	... 11 0 0
Steel Compound Stanchions	12 10 0	... 13 10 0
Angles, Tees, and Channels, ordinary sections	9 15 0	... 10 15 0
Flitch Plates	9 15 0	... 10 15 0
Cast Iron Columns and Stanchions including ordinary patterns	8 0 0	... 9 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
Iron—		
Common Bars	8 10 0	... 9 0 0
Staffordshire Crown Bars, good merchant quality	9 5 0	... 9 15 0
Staffordshire "Marked Bars"*	11 0 0	... —
Mild Steel Bars	9 10 0	... 9 15 0
Hoop Iron, basis price	9 15 0	... 10 0 0
,, ,, Galvanised	17 10 0	... —
(*And upwards, according to size and gauge.)		
Sheet Iron Black—Ordinary sizes to 20 g.	10 0 0	... —
,, ,, 24 g.	11 0 0	... —
,, ,, 26 g.	12 10 0	... —
Sheet Iron, Galvanised, flat, ordinary quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0	... —
Ordinary sizes to 22 g. and 24 g.	16 10 0	... —
,, ,, 26 g.	17 0 0	... —
Sheet Iron, Galvanised, flat, best quality—Ordinary sizes to 20 g.	19 0 0	... —
,, ,, 22 g. and 24 g.	19 10 0	... —
,, ,, 26 g.	21 0 0	... —
Galvanised Corrugated Sheets—Ordinary sizes 6 ft. to 8 ft. 20 g.	16 0 0	... —
,, ,, 22 g. and 24 g.	16 5 0	... —
,, ,, 26 g.	17 10 0	... —
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13 0 0	... —
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0	... —
,, ,, 26 g.	16 0 0	... —
Cut Nails, 3 in. to 6 in. (Under 3 in., usual trade extras.)	10 15 0	... 11 5 0

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
Lead—Sheet, English, 3lb. and up.	24 5 0	... —
Pipe in coils	24 15 0	... —
Soil pipe	26 15 0	... —
Compo pipe	27 15 0	... —
Zinc—Sheet—		—
Vieille Montagne ton	32 10 0	... —
Silesian	32 5 0	...
Copper—		
Strong Sheet per lb.	0 1 4	... —
Thin ,, ,,	0 1 5	... —
Copper nails ,,	0 1 3	... —
Brass—		
Strong Sheet ,,	0 1 2	... —
Thin ,, ,,	0 1 3	... —
Tin—English Ingots ,,	0 1 10	... —
Solder—Plumbers' ,,	0 0 9	... —
Tinmen's ,,	0 0 11	... —
Blowpipe ,,	0 1 1	... —

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	1¾d. ,, ,,
21 oz. thirds	3¼d. ,, ,,
,, fourths	2¾d. ,, ,,
26 oz. thirds	4¼d. ,, ,,
,, fourths	3¼d. ,, ,,
32 oz. thirds	5d. ,, ,,
,, fourths	4¼d. ,, ,,
Fluted Sheet, 15 oz.	3¼d. ,, ,,
,, 21 oz.	4¼d. ,, ,,

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

⅛ Hartley's	2½d. per ft. delivered.
¼ ,,	2½d. ,, ,,
½ ,,	3d. ,, ,,
Figured and Oxford Rolled "Oceanic" Glass, white ...	4d. ,, ,,
Do. ,, tinted ...	5¼d. ,, ,,

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 2
,, ,, ,, in barrels	,,	0 2 1
,, ,, ,, in drums	,,	0 2 4
Boiled ,, ,, in pipes	,,	0 2 3
,, ,, ,, in barrels	,,	0 2 4
,, ,, ,, in drums	,,	0 2 5
Turpentine in barrels	,,	0 3 3
,, in drums	,,	0 3 5
Genuine Ground English White Lead	per ton	26 10 0
Red Lead, Dry	,,	25 10 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TERMS OF SUBSCRIPTION.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BATLEY.—For heating apparatus. Park-road and Field-lane Provided schools, for the Education Authority. Mr. O. J. Kirby, Borough Engineer, Town Hall, Batley:—

Park-road.

T. H. Rayner, Huddersfield £270

Field-lane.

T. H. Rayner, Huddersfield £89

BLAENAVON.—For construction of a filtering tank, laying of a length of 3 in. cast-iron main, including excavations and jointing, for the Urban District Council. Mr. Percy Griffith, M.Inst.C.E., 54, Parliament-street, Westminster:—

Filtering Tank.

Rawkins & Jackson	£197 0 0	T. Walker, Clydach, Swansea*	£97 15 6
T. Jones	112 0 0	W. Downs & R. Brankley	96 0 0
J. Bevan	100 18 9		
P. Westacott	100 0 0		

Main-laying.

Rawkins & Jackson	£180 0 0	F. & J. Hannay Bros.	£104 17 6
P. Westacott	128 0 0	Beaven & Sons, Ltd.	84 16 8
W. Downs & R. Brankley	119 10 0	T. Walker, Clydach, Swansea*	64 0 0
J. Hunter	113 10 0		
T. Jones	108 0 0		

BRISTOL.—For heating by hot water (low pressure), by coil and radiators, a warehouse and offices in York-road, for Mr. S. Iles. Messrs T. J. Moss Flower & Davies, architects and surveyors, Bristol and Westminster:—

Messrs. Weech & Sons, Ltd., Bristol £160

CUDDINGTON.—For painting outside of hospital near Banstead railway station, for the Visiting Committee:—

H. H. Keast, York-terrace, Cheam .. £95 17 6

GRIMSBY.—For drainage of Humberstone-avenue, for the Rural District Council. Messrs. Bentley & Hall, Old Market-place, Grimsby:—

T. Wilkinson	£443 0 0	J. C. Allison	£292 14 6
W. Gilbert	359 17 6	G. Fines	291 18 11
H. J. Mason	352 0 0	G. W. Brown	291 11 6
W. Kirton	337 13 1	E. R. White, Sheepfold-street, Grimsby*	277 10 0
W. H. Allison	295 0 0		
Fotherby & Grimsby Lime Co.	294 8 11		

HASLEMERE.—For the erection of a house at Haslemere, for Mrs. E. Sanders. Messrs. F. J. Hodgson & W. Symmonds, architects and quantity surveyors, 8, Testard-road, Guildford:—

N. Holden & Son	£715	C. Doughton, Haslemere†	£565 0
R. Smith	640	C. Ticehurst	500 0
F. Deacon & Son	625	J. Madgwick	484 16
D. Fry	625		
Haslemere Builders	620		

HEYSHAM HARBOUR.—For erecting a sawmills, for Messrs. V. Wilkinson & Sons, Thornton-in-Craven, via Leeds. Messrs. Harrison, Hall, & Moore, architects, 73, Church-street, Lancaster. Quantities by the architects:—

Sole Tenders.

J. Wildman	£2,497 0 0	R. Thompson	£1,732 0 0
J. Johnson	1,805 13 4	J. Edmondson & Co.	1,620 0 0
W. J. Slater	1,788 12 0		
F. Moore	1,742 8 0½		

Separate Trades.—Bricklayers.

W. Harrison	£1,451 0 0	S. Waterworth & Sons	£1,074 8 8
M. Sunderland	1,275 0 0	F. Moore	1,048 5 8½
T. Duckett	1,203 0 0	R. Thompson	977 15 9
J. Thoms & Sons	1,101 1 2	W. Gardner, Morecambe*	939 10 0
W. Wilkinson	1,097 0 0		
R. L. Dilworth	1,091 15 0		
J. Slater	1,081 13 0		

Joiners.

W. Richardson	£460 3 10	W. Parkinson	£429 14 9
Baker & Overend	455 0 0	R. Thompson	420 0 0
W. H. Pick	442 0 0	H. Wilman	406 10 0
T. W. Huntington	433 0 0	F. Moore	360 4 5
W. Gardner	432 7 6	J. H. Brear, Morecambe*	353 18 0

Slaters.

Hall & Son	£219 7 3	Cross & Sons	£184 7 0
W. H. & E. Walton	220 0 0	P. Smith, Early*	162 7 0
W. J. Cross	202 0 0	F. Moore	154 13 0

Plumbers.

W. Abbott	£141 11 0	Lambert & Son	£125 0 0
A. Higginbotham & Sons	135 14 0	H. P. Calvert	115 0 0
S. H. Cross & Co.	132 0 0	R. P. Wilson	113 4 0
F. Moore	129 14 10	Rushton & Pinch	111 3 6
S. Simpson	126 3 0	C. H. Whittle, Lancaster*	103 0 0

Painters.

F. Moore	£49 10 6	Crook & Linthwaite	£30 9 4
E. C. Parr	38 3 11	Harland & Sons	25 0 0
T. W. Huntington	33 0 0	Swainson & Son, Lancaster*	20 10 0
J. Stephenson	30 9 7½		

Patent Glazing.

The Standard Patent Glazing Company, Dewsbury.

Steelwork.

E. F. Blakeley & Co., engineers, Liverpool.

HYTHE.—For proposed house at Hythe, Kent, for Mr. A. E. Mosley. Mr. T. Wallis, architect and surveyor, 146A, Wardrobe-chambers, Queen Victoria-street, London, E.C.:—

Scott Bros.	£2,130	Lewis & Sons	£1,730
A. Phelps	1,974	R. Grayling, Folkestone*	1,617
J. J. Jeal	1,790		

LLANDAFF.—For new roads and sewers, and for erecting a detached villa residence on the Llandaff House Estate. Mr. W. H. D. Caple, architect, 2, Church-street, Cardiff:—

Villa.

S. Shepton & Sons	£1,335 0 0	W. Symons & Co.	£1,124 18 6
W. H. Evans	1,280 0 0	D. Davies	1,120 0 0
E. Turner & Sons	1,265 0 0	J. H. Maggs & Co.	1,102 18 0
J. Allen & Sons	1,237 0 0	W. T. Morgan.	1,050 0 0
E. T. Bevan	1,172 0 0	Pye, Parkinson, & Co., Sketty, Swansea*	982 16 10
W. Williams	1,145 0 0		

Roads and Sewers.

W. Symons & Co.	£421 9	E. T. Bevan	£300 0
J. Allen & Sons	387 0	Pye, Parkinson, & Co.	276 7
E. Turner & Sons	375 0	Barnes, Chaplain, & Co.	273 10
W. H. Evans	360 0	Mackay & Davies, Cardiff*	270 0
J. H. Maggs & Co.	313 19		
G. L. Morgan	313 7		
W. Williams	307 0		

LLANELLY.—For cottage, Glanmor-road, Llanelly, for Mr. W. Owen. Mr. J. Billet, architect and surveyor, 33, Prospect-place:—

T. P. Jones	£430	T. Williams*	£374
Brown, Thomas, & John	395	J. Smith	368
		R. Evans	330

LLANHILLETH (Mon.).—For erecting a new parish church. Mr. E. A. Johnson, F.R.I.B.A., Abergavenny:—

E. T. Bevan, Penarth* £3,500

LONDON.—For alterations and additions, Theobalds-road, W.C., for the Daimler Motor Company, Ltd. Messrs. Briant & Son, surveyors, 200, Kennington Park-road, S.E.:—

F. & F. H. Higgs	£1,211	J. Marsland & Son	£1,080
Patman & Fotheringham	1,181		

LONDON. — For internal alterations, cleaning, painting, repairs, etc., at No. 11, Ampthill-square, N.W., and for cleaning fronts of Nos. 10 and 11, Ampthill-square, for St. Pancras Guardians:—

		Alternative Tender.
Huitt Bros.	£300 0 0	£350 0 0
Markham & Markham	259 0 0	289 0 0
C. Wiber & Co.	243 18 6	254 16 6
W. J. Black	230 0 0	265 0 0
Austin & Son	225 0 0	252 0 0
A. T. Eyers	211 0 0	236 0 0
W. Titmas & Sons	201 0 0	219 0 0
Winkworth Bros.	182 11 9	198 1 9
G. Butters	178 13 0	181 13 0
F. W. Hardy	170 0 0	188 0 0
J. G. Boddy	168 16 6	192 4 0
Thompson & Beveridge	164 0 0	177 10 0
Coatestone Decoration Co.	160 0 0	179 0 0
F. J. Folkard & Co.	159 0 0	184 0 0
A. Perton	155 0 0	165 10 0
J. J. Richards	151 10 0	173 0 0
J. Sims	150 11 0	174 0 0
Loasby & Salmon	150 0 0	175 0 0
Greenhill & Markham	145 0 0	153 0 0
W. J. Keel	143 10 0	165 10 0
Franks & Simons	138 16 6	153 16 6
B. Richards & Son	135 10 0	150 14 0
A. E. Lamb	135 0 0	167 0 0
J. Christie	134 10 0	148 10 0
S. T. Wright	132 10 0	140 0 0
J. & H. Bangs	130 0 0	173 0 0
A. E. Hubbard	129 0 0	145 0 0
Danes & Staples	127 0 0	155 0 0
W. S. Rice	102 5 0	114 5 0
W. Dudley, 92, High-road, New Southgate	92 5 0*	105 0 0

H. Richardson & Son (informal)

MIDSOMER NORTON.—For erecting a stone-built house. Mr. R. C. Austin, A.R.I.B.A., 37, Old Queen-street, Westminster, S.W.:—

Bartlett	£7,766	Gandle & Sons	£6,931
Berry	7,422	Tovey	6,911
Pollard	7,376	Merrick	6,892
Moore	7,362	Parnell	6,787
Drew	7,328	Long & Son, Bath‡.	6,437
Bromage & Evans	6,987	C. Carden & Co.	6,306

‡ Recommended for acceptance subject to modification.

SCUNTHORPE.—For erection of higher elementary school and pupil teachers' centre, for Lindsey County Council Education Committee. Messrs. Scorer and Gamble, Architects, Bank-street-chambers, Lincoln:—

G. Houston & Son	£12,250 0 0
J. Jarvis & Sons	12,140 0 0
F. T. Salmon & Co.	12,078 5 9
O. Eastwood & Sons	11,630 0 0
C. Sprokes & Sons	11,600 0 0
W. Sattinson & Sons	11,494 0 0
H. J. Thompson	10,910 13 4
T. Cuthbert	10,840 0 0
Moss & Sons	10,484 0 0
H. W. Parker & Son, 46, Wormgate, Boston†	10,105 0 0

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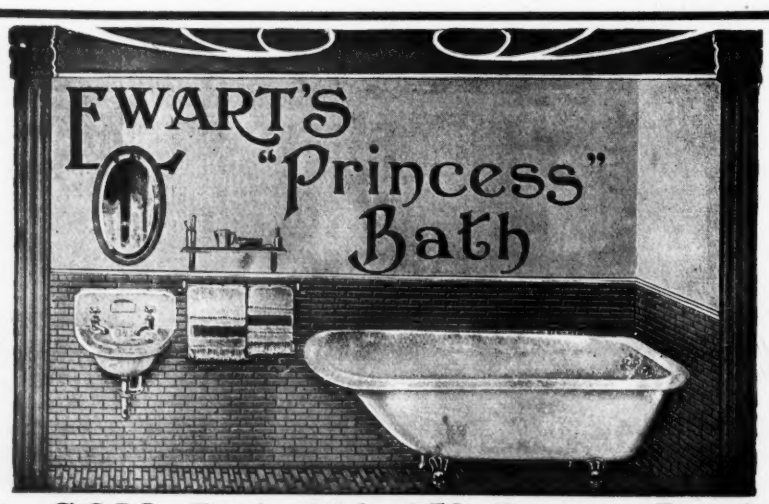

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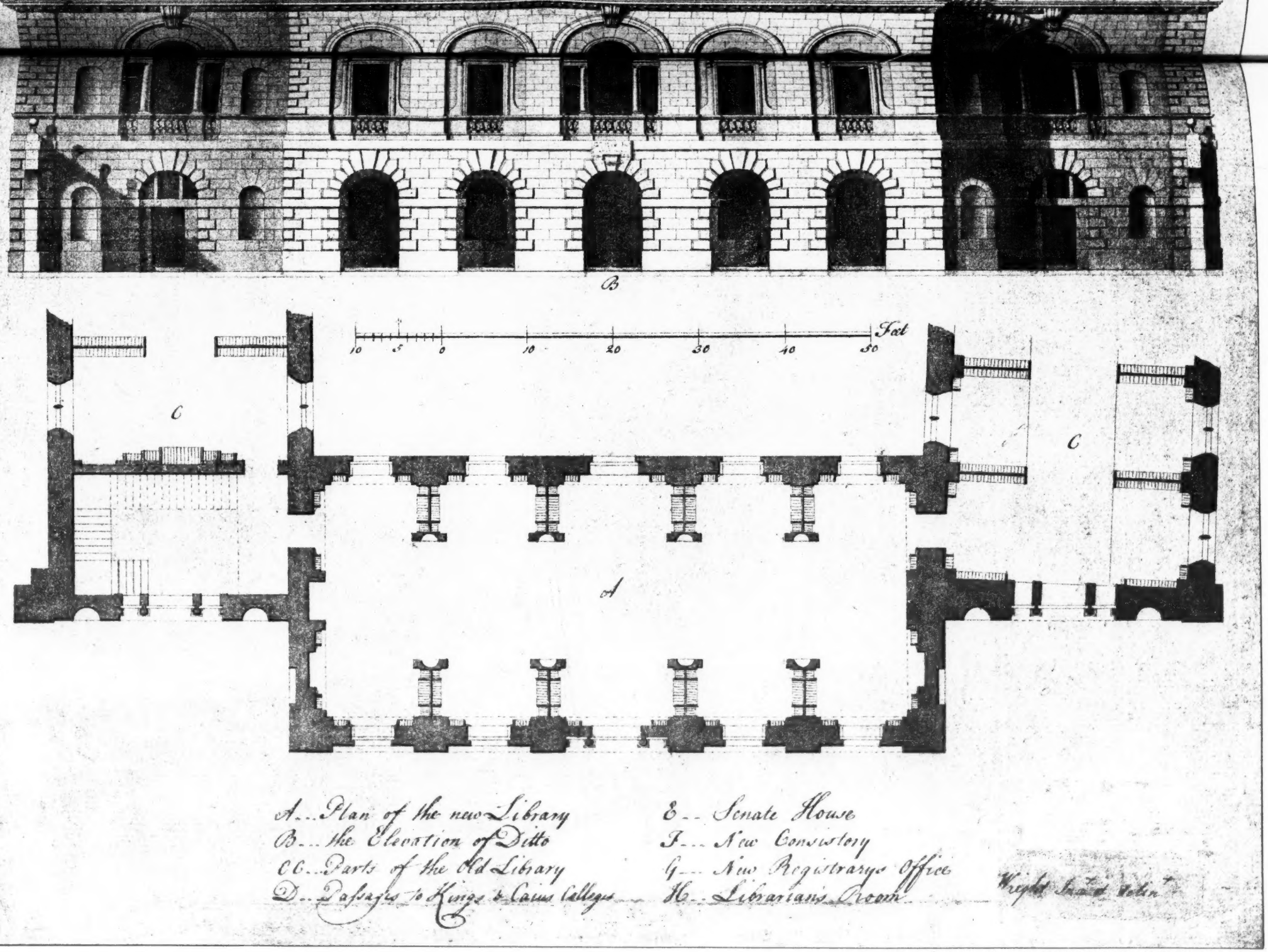

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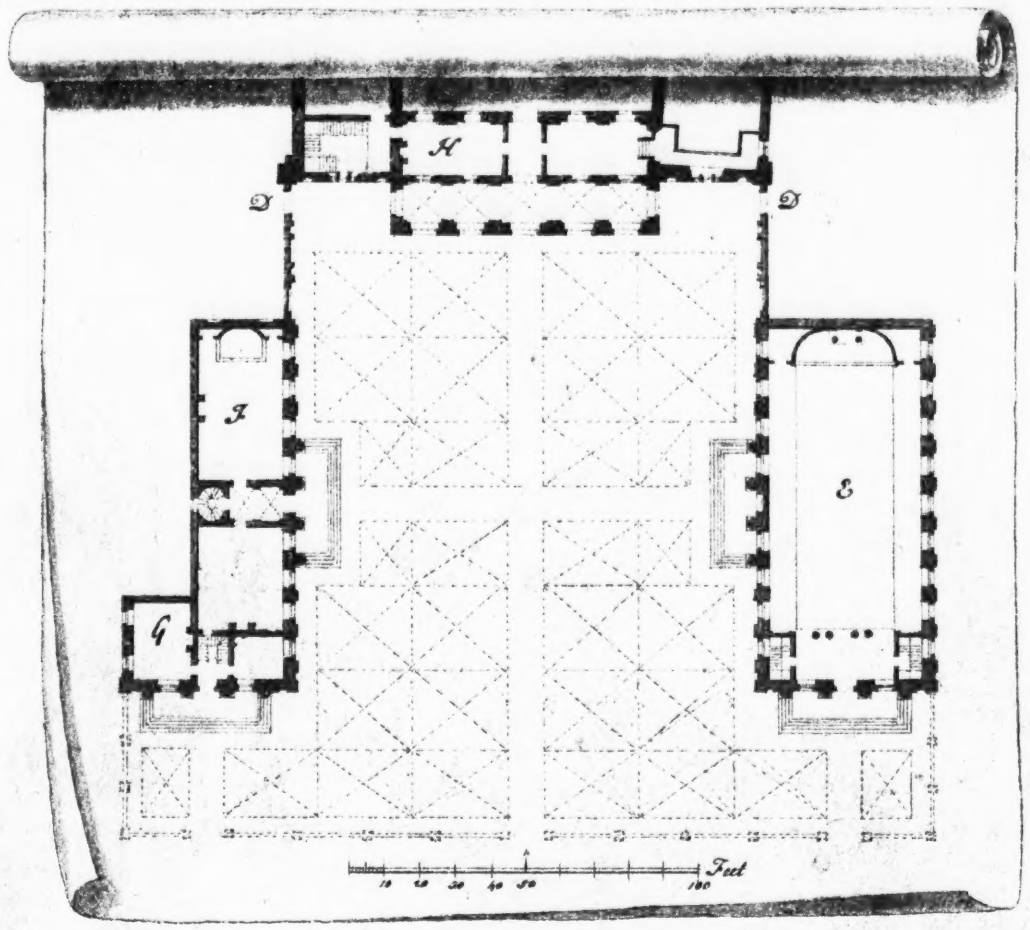

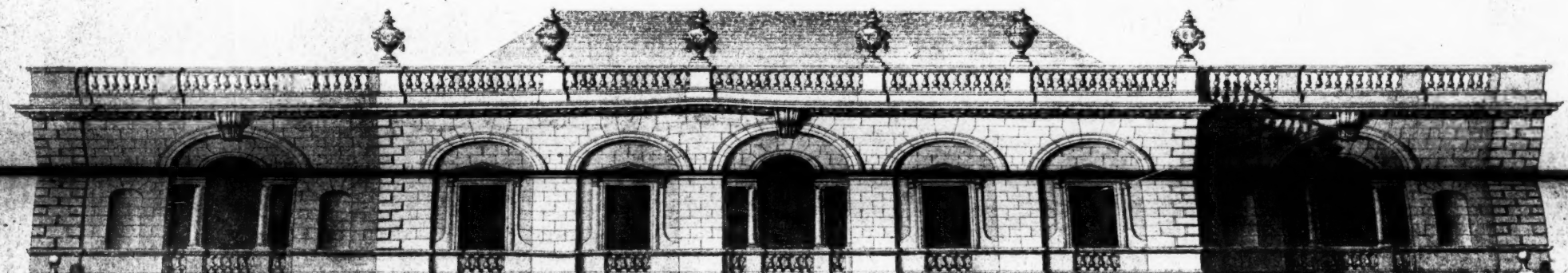

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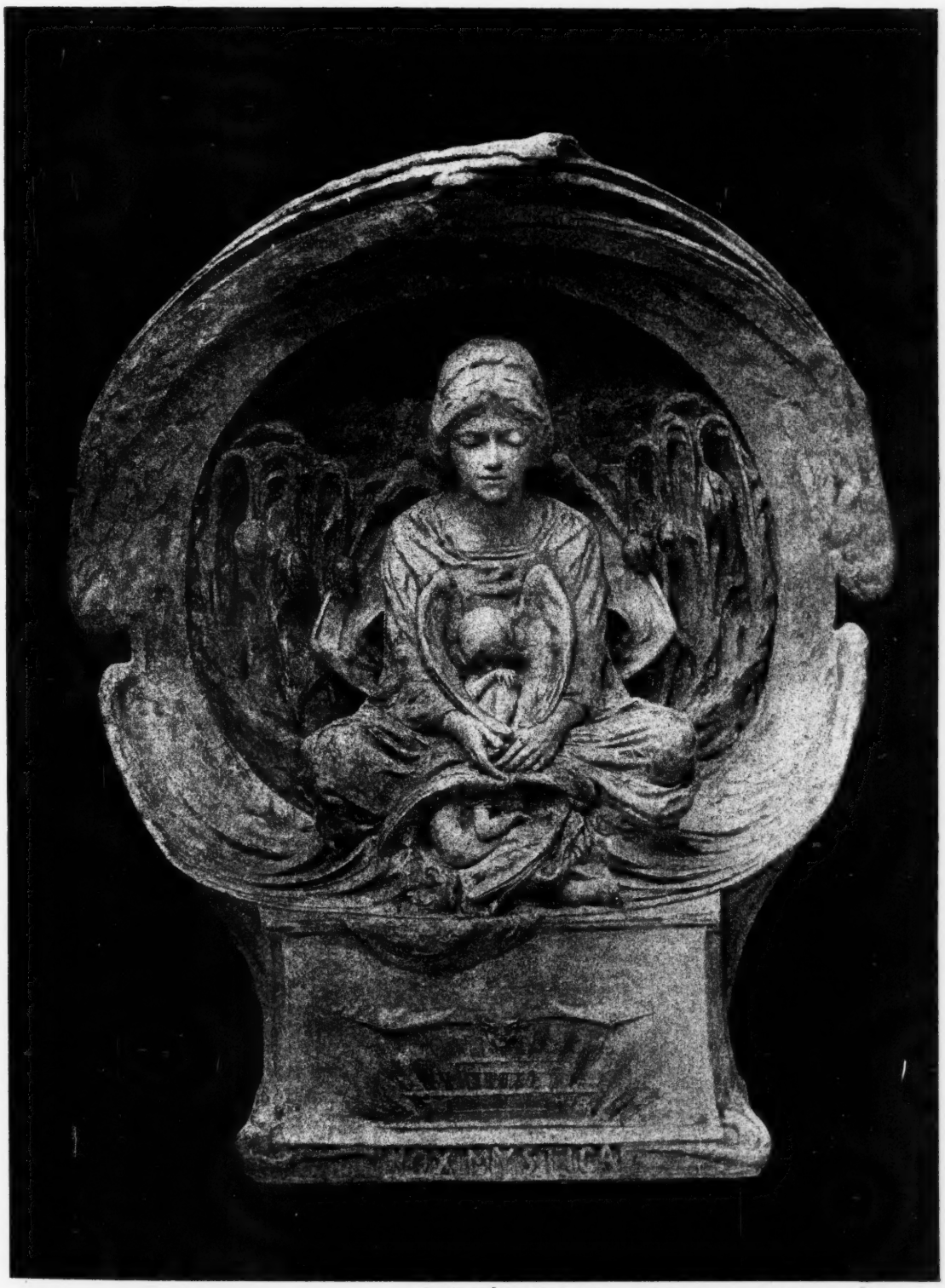

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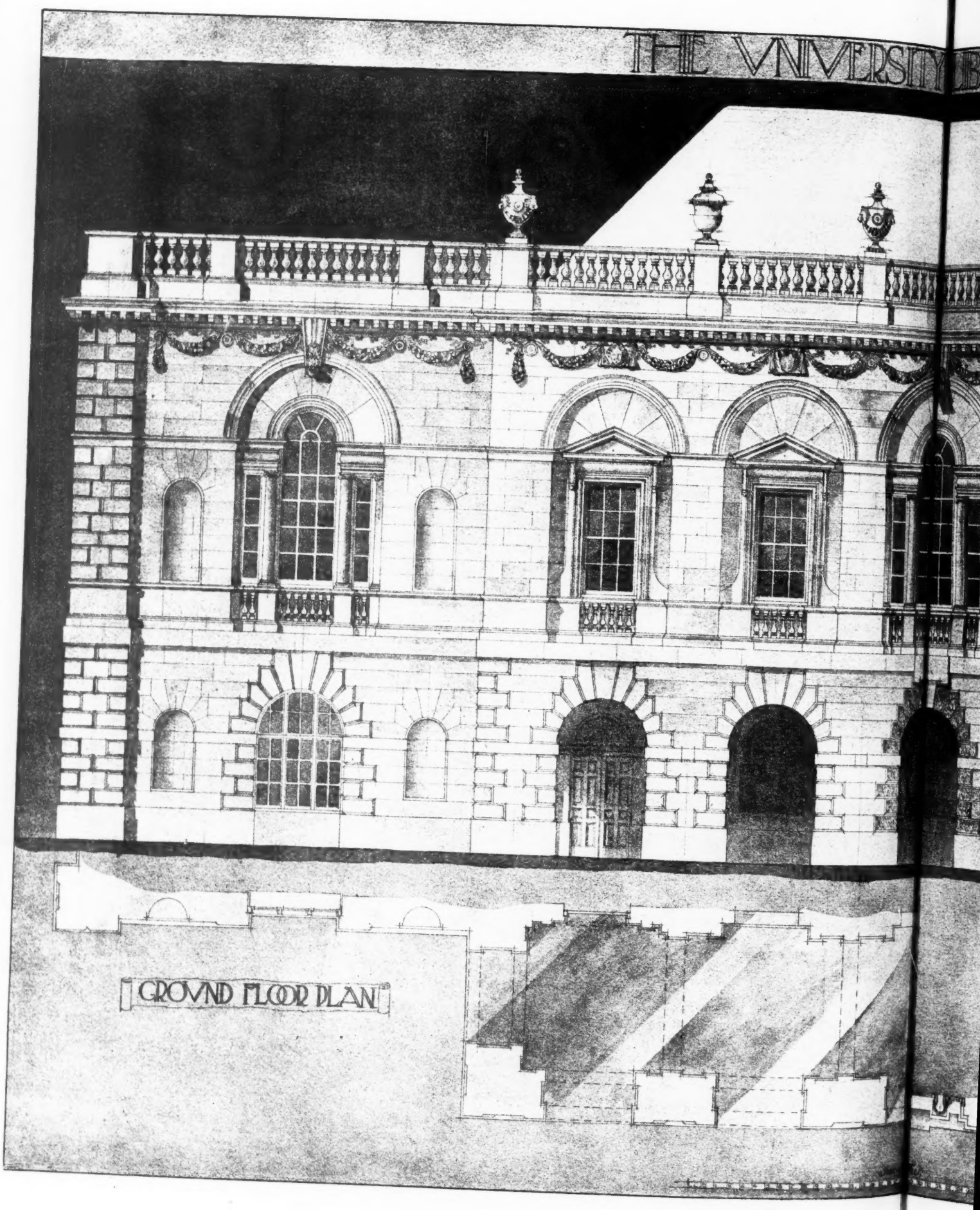

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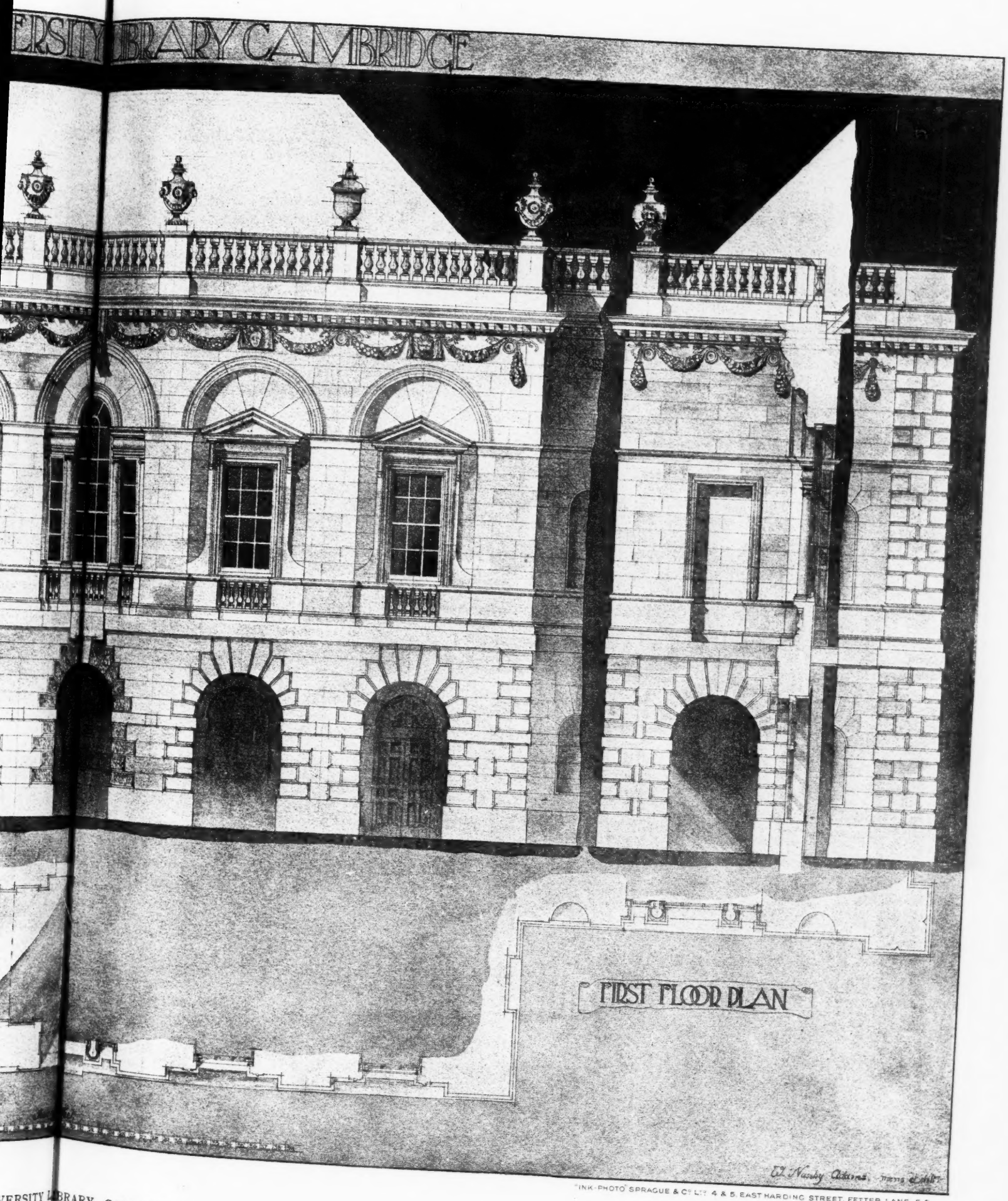

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